The New England
Journal of Medicine

VOLUME 216 APRIL 15, 1937 NUMBER 15

NEW ENGLAND SURGICAL SOCIETY

EXSTROPHY OF THE BLADDER*

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EXSTROPHY of the bladder is one of the most distressing of the congenital malformations. The exposed mucous membrane of the bladder is sensitive, the patient is constantly bathed in urine, and the adjacent skin is irritated. He becomes an outcast and is shunned by his associates on account of the unpleasant odor of urine which surrounds him. In recent years the treatment of this condition has not been directed toward the reconstruction of the normal, as it has been in some of the other congenital defects, so a discussion of the embryology is of little importance. Suffice it to say that of the several theoretical causes of this condition, the one most generally accepted is that of arrested development. According to von Geldern[1] varieties of this malformation have been reported which roughly may be grouped into three classes—the complete epispadias with lack of bladder sphincter, exstrophy with a fistulous opening into the intestine, and the usual complete exstrophy, with which this paper concerns itself. In the latter class, the anterior wall of the bladder is completely lacking. The posterior wall of the bladder presents on the surface of the abdomen and is continuous with the exposed urethral mucous membrane. The pubic bones are separated, and there is a wide diastasis of the recti muscles. Commonly associated with this condition are undescended testicles or inguinal hernias.

The first attempts at relief of this malformation were in the form of plastic operations that were directed toward reconstruction of the bladder. These operations, so far as we know, never met with success sufficient to warrant their adoption. Later, complete ablation of the bladder was performed, the urinary stream was diverted to the loin or the groin, and the patient subsequently wore some form of mechanical device for collecting the urine. It is interesting to note that the late Dr. James S. Stone of the Children's Hospital, sensing the difficulties of adjusting urinals, devised an operation for facilitating their application. He freed the ureters and implanted them in the penis, with the end of each ureter emerging at the glans. In one instance this operation met with a modicum of success. The boy grew to adult life and adapted himself to the wearing of a rubber urinal with some comfort. The drawbacks to all these types of operation are sufficiently obvious, however, to make further comment unnecessary.

The idea of utilizing the large bowel for a urinary reservoir is not a new one, but the technic for doing this has gone through many modifications. The recent literature has become voluminous and the number of recommended gadgets so numerous that we feel the fundamental principles of the operation are in danger of becoming blurred if not obscured. Maydl in 1894 was one of the first to divert the urinary stream into the rectum. He resected the bladder, leaving the trigone and a small amount of bladder tissue that was directly adjacent to the ureteral orifices attached to the ureters. Both ureters and this small amount of bladder tissue were then implanted into the rectum. Peters[2] improved on the Maydl technic by transplanting both ureters into the rectum, separately but simultaneously. Estes[3] reported a case in which he transplanted the ureters into the rectum separately and simultaneously in 1909. The patient lived for 24 years in comfort and in apparent health but then died of glomerular nephritis. One of the authors of this paper (Ladd) operated on a child of 2 years (No. A5623) in 1918, simultaneously resecting the bladder and implanting the ureters separately and obliquely into the rectum. This patient was followed for 16 years, enjoyed good health and so far as is known is still alive.

In 1909 Coffey,[4] suggested that the principle of oblique transplantation with its valve action might be adapted to ureteral transplants, in an article devoted to the implantation of bile ducts. In 1921[5] he published a technic, which has come to be known as the Coffey number 1 operation. In this operation there was a very elaborate technic of preparation of the rectum, after which the two ureters were exposed and a rubber tube fastened into each. The ureters with their inlying catheters were introduced into the bowel after lying on the submucosa for a short distance. The end of the inlying tube was then drawn out through the anus, and the inlying tubes were left in the ureters until the sutures that held them in place sloughed through, usu-

*Read at the annual meeting of the New England Surgical Society at Bridgeport, Conn., September 26, 1936.

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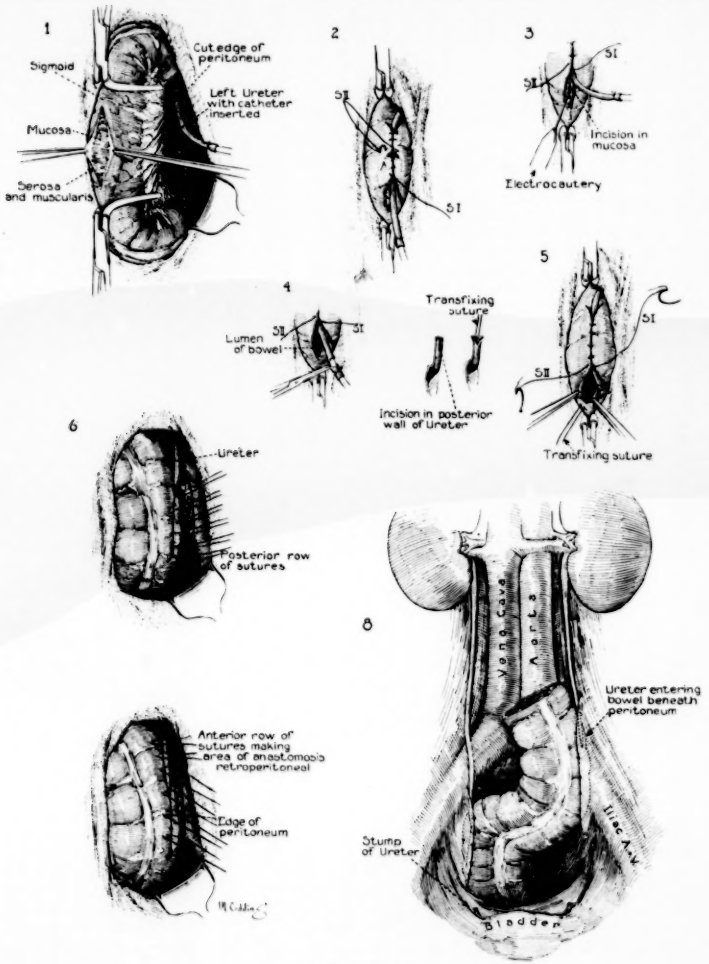

FIGURES 1-8.

ally a matter of a week to 10 days. In 1928[6] he published the number 2 operation, which was very similar to the number 1 operation except that he placed a short rubber cuff over the catheter that was left inlying. In the number 3 operation[7] no ureteral catheters were used. Only one ureter was transplanted at a time, and the opening into the bowel was made by placing a silk suture through the mucosa of the bowel and through half of the ureter, tying it tightly and waiting for it to slough through before urinary flow was established. In all three modifications of the operation, he retained the oblique submucous transplant, which we believe is the important part of his contributions.

The results of animal experimentation by one

FIGURE 9. Shows method of applying supporting belt. This helps to overcome the waddling gait due to the wide symphysis.

of us (Lanman) and of our own clinical experience and that of others has led us to abandon a considerable portion of the technic of Coffey. Yet to Coffey must go the credit for the submucous oblique implant of the ureter into the rectum. The popularization of the operation is, in great part, due to his work and to the excellent clinical results that have been reported by Walters and others from the Mayo Clinic.

The principles that we consider to be fundamental are:

1. Simplification of technic.
2. Careful asepsis.
3. Uninterrupted urinary flow.
4. Omission of the use of inlying catheters to avoid ureteritis.
5. Doing the operation, including the cystectomy, in three stages.

The chief difficulties and dangers in the operative treatment of exstrophy of the bladder by ureterosigmoidostomy are:

1. Peritonitis that results from leakage or soiling at the site of anastomosis.
2. Obstruction of urinary outflow at the site of anastomosis.
3. Urinary tract infection, with its resulting kidney damage.

The methods used for the treatment of exstrophy of the bladder at the Children's Hospital before 1930 were unsatisfactory. The operative mortality from peritonitis was high. Postoperative kidney function was often impaired to a considerable degree by urinary tract infection. The methods then advocated to avoid peritonitis and urinary tract infection and to insure urinary outflow were time-consuming, complicated and ill-suited to the age group here considered.

From 1928 to 1930 experimental work on this problem was done in the Laboratory of Surgical Research of the Harvard Medical School by Lanman and Colby.[8] They endeavored to determine whether the use of any mechanical guide to insure urinary outflow through the site of anastomosis was needed. By transplanting one ureter at a time, and by a method that is explained later, it seemed clear that any possible, slight, temporary impairment of urinary outflow through the side that was anastomosed was safely compensated for by the opposite side, even though no guide was used. Previous experience in the treatment of hypospadias suggested that the presence of a foreign body, such as a catheter, at the site of the plastic operation on the urethra resulted in a greater chance of infection and urinary leakage than if none was used. Their experimental work on ureterosigmoidostomy confirmed this impression. Immediate postoperative peritonitis was more common in cases where some mechanical guide through the site of anastomosis was used, and postmortem examination seemed to indicate that this foreign body was often the causative factor. Moreover, postmortem examination at a later date in animals that survived the operation showed, both grossly and histologically, that there was more urinary tract infection when a guide had been used than when it had not. It seemed clear that, if the two-stage operation was used, obstruction to urinary outflow need not be feared if no guide was used. It seemed also clear that the use of a guide was not only unnecessary but dangerous. They, therefore, concluded that the two-stage operation, without the use of catheters or guides, offered the best method to minimize and prevent the dangers of peritonitis, urinary obstruction and urinary tract infection.

On the basis of these experimental studies and

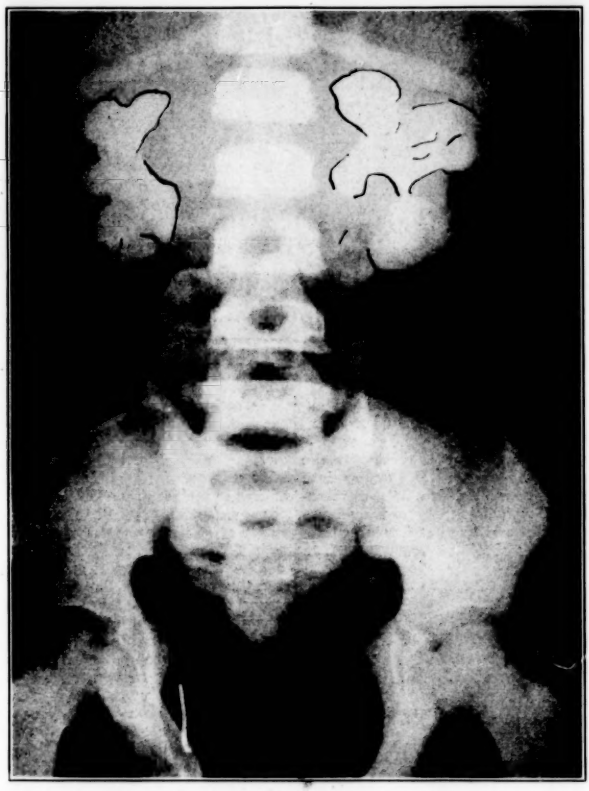

FIGURE 10. Patient A. H. This patient was operated on using the Coffey technic. These intravenous pyelograms show a great degree of pyonephrosis.

from clinical experience, we have developed a technic for the treatment of exstrophy of the bladder. We now wish to report the results in 15 cases of this condition. As each ureter was transplanted separately, we may base our conclusions on 30 operations of ureterosigmoidostomy. These patients have been followed for periods varying from a few months to 5 years after operation. Our postoperative studies include clinical examinations, pyelographic records and determinations of blood chemistry.

We believe that the best time for the operation is between the ages of 3 and 5 years. A patient younger than 3 years cannot cooperate intelligently in acquiring the control of the rectal sphincter. Earlier operation has been advised by some writers on the ground that it lessens the chance of urinary tract infection from the exstrophied bladder and ureters. Many of our patients have been observed since early infancy. Intravenous pyelograms and determinations of blood chemistry have been made. Those have been normal in enough cases to lead us to the opinion that preoperative urinary tract infection is a rarity. In only 1 patient (R. B. aged 6) was there any preoperative evidence of severe kidney infection, and in this case a complicating, additional anomaly was associated with the exstrophy. The oldest patient was 21 years of age and showed little, if any, preoperative evidence of urinary infection. Therefore, while it is desirable to relieve this

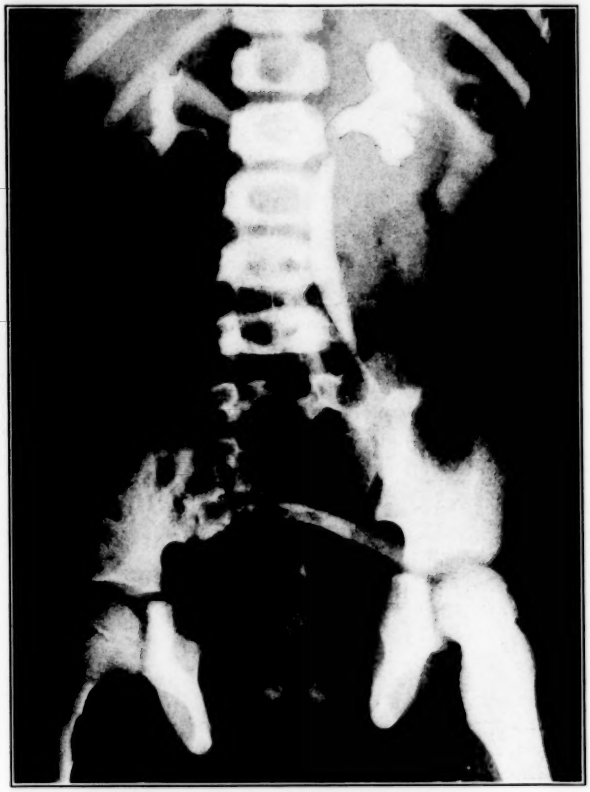

FIGURE 11. Patient G. C. Intravenous pyelograms taken 2 years after operation by the present technic. The left kidney pelvis is moderately dilated probably because the ureter was transplanted into the sigmoid too high and too much to the left. Evidence of kinking is shown.

distressing condition as soon as is expedient, early operation should not be advised solely on the grounds of preventing infection. Three patients in this series have been operated upon between the ages of 2 and 3 years, and the postoperative control of the bowel has not been nearly so prompt or so satisfactory as in the older patients. Any serious surgical procedure should be postponed until after the third year, when it can be done with less danger to the patient.

We believe that the patient should have several days of hospitalization before the first operation. Intravenous pyelograms and nonprotein nitrogen and phenolsulphonphthalein determinations should be made, in addition to the usual physical examination and routine laboratory studies. The patient should have a low residue diet and a saline enema daily. Active purging is to be avoided as it often results in gas distention in the large bowel. It is desirable to give glucose in generous amounts for 48 hours prior to operation. Avertin, 80 mg. per kilogram, supplemented by gas and oxygen and a little ether, seems to us to be the anesthetic of choice. The clamped rectal tube, which is used for the administration of the avertin, is left inserted in the rectum.

The exstrophied bladder is carefully walled

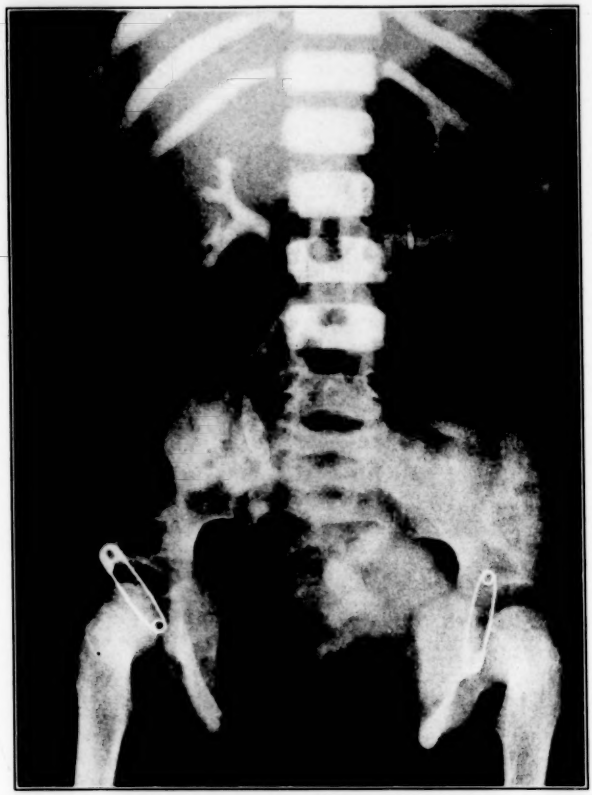

FIGURE 12. Patient W. C. 2 years after operation by the present technic. The kidney pelves and ureters have normal outlines.

off with sterile gutta-percha before the patient is draped with sterile towels. The right ureter is transplanted first. A low right rectus incision is made, the peritoneum opened, and the ureter identified as it crosses the iliac vessels at the brim of the pelvis. An incision is made in the posterior parietal peritoneum over the ureter. The ureter is then freed from its bed down almost to the bladder, where it is tied and cut off with the actual cautery or with an electric knife, and the distal end allowed to drop back behind the peritoneum. In the last few cases we have inserted a catheter into the ureter, to be retained only while the ureter is being sewed into place on the submucosa of the bowel (fig. 1).* The purpose of this is to be certain that the ureter will not be constricted by the sutures during its oblique passage through the bowel. The sigmoid is then brought over so that the proper position of the line of implantation can be judged. This should be made so that its proximal end will lie close to the proximal end of the freed ureter as it leaves its retroperitoneal bed. The line of incision should then run so that the intrasigmoidal portion of the ureter lies in a straight line. There should be no strain on the bowel itself at this site, and no kinking of the ureter.

*It will be seen that the illustration shows the *left* ureteral transplant.

The rectal tube is then unclamped, the sigmoid is milked to express gas and liquid contents, so far as possible, and right-angle intestinal clamps are applied. An incision through the serous and muscular coats in the line previously ascertained is made for about 2½ to 3 inches (fig. 1). The ureter, with a temporary, inlying catheter, is then placed on this submucosa in such a way that it will not kink. The edges of the serous and muscular incision are next approximated for about three quarters of its length over the ureter by one over-and-over running stitch of fine silk and another overlapping Cushing suture of fine silk to the serous coat (fig. 2). A sufficient amount of the ureter is then cut off so that, when it is in place, it is neither on tension nor kinked (fig. 4). A longitudinal cut is made in the posterior wall of the ureter to prevent its orifice from ever becoming constricted (fig. 5). A double-ended suture is placed in the end of the ureter from within outward to evert it. The mucosa of the bowel is opened with the electric knife (fig. 3), and the ureter is carried into the lumen of the sigmoid by the double-ended suture, which pierces all layers of the bowel from within outward and is tied holding the ureter in place (figs. 5 and 6). The two rows of sutures are next completed, closing the opening in the gut and covering up the suture that holds the ureter in place. The sigmoid is next stitched with interrupted silk stitches to the medial side of the peritoneal incision that exposed the ureter. When this step is completed the lateral side is stitched, making the whole line of anastomosis extraperitoneal (figs. 6 and 7). The abdominal wound is closed without drainage. Two weeks or so later, the left ureter is implanted into the sigmoid in a similar manner. At this second stage, the great importance of the transperitoneal approach will be evident, because the site of the second transplant can be chosen higher up in the sigmoid so that neither the sigmoid nor the two transplants will be kinked or strained, as both of them are in view (fig. 8). Our contention is that the dangers of peritonitis in the transperitoneal approach are far less than the dangers of an improperly or blindly chosen site of anastomosis. The extraperitoneal approach cannot give such an accurate idea as to how the ureter should lie in relation to its normal course or to the position of the sigmoid after transplantation has been done.

Immediate and large amounts of fluid intake after the operation are essential to ensure not only adequate fluid needs of the body but more especially good kidney excretion. While there may be some edema at the site of the anastomosis with the method described, the liberal use of intravenous glucose acts as a diuretic and, in our experience, has resulted, in nearly all cases, in a prompt establishment of normal urinary excretion through the transplanted ureter.

The exstrophied bladder should always be removed. The time for cystectomy may always be postponed until sufficient time has elapsed for the patient to recover entirely from the two previous operations. The bladder is removed by an elliptical incision made in the skin close to the mucous border and by then dissecting the mucous membrane with part of the musculature; care should be taken, however, not to open the peritoneum. The dissection is carried down to a point in the region of the verumontanum, in the male, so as to save the ejaculatory ducts, and the bladder is removed. The resulting space may be largely covered by suturing the edges of the anterior rectus fascia together and by closing the skin over these edges. In some of the cases where the edges of the cleft were unduly far apart, a flap of rectus fascia has been used to close the space. After the wound from the cystectomy is healed, a belt is applied in the manner used by the longshoreman, namely below the crests of the ilia. This lessens the waddling gait that these children have and increases their ability to partake of active exercise (fig. 9). In the male a plastic operation on the epispadias should be performed later. In the female the vagina, uterus and adnexa are usually present and normal. In this series, 1 female has married within the year, but to date there is no report of pregnancy. Turner,[9] the Mayos[10] and others report cases where pregnancy has occurred, and normal children have been delivered in patients with exstrophy of the bladder that has been treated surgically. In our series there has been no mortality following the cystectomy, and herniation through the cleft abdomen has not been a matter of concern in any case.

Since the experimental work of 1928 to 1930, 30 ureterosigmoidostomies have been performed upon 15 patients with exstrophy of the bladder. These patients are all still living and well. There has been but 1 case of peritonitis. This was not fatal, though it necessitated a secondary operation for pelvic abscess and wound separation. A urinary and fecal fistula resulted, but this eventually closed, and pyelograms taken 1 year later showed moderate, but not severe, kidney damage on that side. Clinically the child is very well. This case of peritonitis was obviously the result of a technical error.

In 14 of the 15 patients urine appeared within 48 hours and usually within 24 hours after the initial transplant. In 1 case, bloody fluid was passed by rectum in 36 hours, but after this

episode none appeared for 3 days. It then appeared that urinary flow was well established and the patient did well subsequently. After one ureter has been transplanted it is, of course, difficult or impossible to tell just when the second transplanted ureter begins to function. In 1 case, urine leaked from the apparently healed wound 10 days after the second ureter had been transplanted. This lasted for a week and then stopped. It is assumed that there was some retroperitoneal leak at the site of anastomosis, and that the urine worked its way around, anteriorly and extraperitoneally, to the wound. There was no peritonitis, and the patient has since done well.

Kidney function, as evidenced by clinical appearance, blood findings and pyelograms, is most encouraging as compared with earlier operative results (figs. 10, 11 and 12). Control of the bowel for 3 to 4 hours during the day has been obtained in nearly all cases within 3 weeks or less after operation; only in the younger patients have we had difficulty in relieving them of the distress of soiling. Night training takes longer, especially in the young, but it is obtained eventually—sooner in the older and more intelligent patients. Intelligence of the parent is as great a factor for success here as in the ordinary house training of the normal child. In the 21 year old patient, control of the bowel during the day was almost immediate on completion of the second stage of the operation. At present she can go 6 to 8 hours during the day without emptying the rectum. She regulates her fluid intake in the evening and does not have to get up at night. She drives a car, dances, plays golf and swims. She was the first of this series and obtained one of the best results.

SUMMARY AND CONCLUSIONS

We believe that the following points are of great importance for success in the treatment of exstrophy of the bladder:

1. A three-stage operation.
2. The transplantation of the right ureter first, and the left 2 to 4 weeks later.
3. The transperitoneal approach for the ureterosigmoidostomies, leaving no catheter or guides, but having the proximal end of the ureter opened widely by a longitudinal split.
4. No drainage of the peritoneal cavity.
5. Removal of the bladder as soon as is practicable after the ureteral transplants.
6. The age of the patient, which should be, preferably, between 3 and 5 years.

It seems clear from experimental and clinical experience that the dangers of peritonitis in the transperitoneal approach are minimal. The transperitoneal approach has, in addition, many advantages and should be used. Immediate excretion of urine through the anastomosis, as described, needs no mechanical assistance for its occurrence, and, therefore, mechanical means should not be used for this purpose or for preventing urinary tract infection.

We also believe that later urinary tract infection is more likely to occur with the so-called "aseptic" type of extraperitoneal operation than with an operation that strives to have the course of the ureter into the bowel as straight and as unobstructed as possible.

The oblique, submuscularis transplantation of the ureter with its possible valve action, plus an unobstructed and straight flow of urine through the ureter into the bowel, is of far more importance in preventing urinary tract infection than is commonly emphasized today.

Anything that disregards these principles or that adds in any way to the complication of the operation is distinctly undesirable. The simplest method seems much the best and, in our hands, has so far proved successful.

In this series of 30 ureterosigmoidostomies there have been no fatalities, and a good functional result has been obtained in every patient.

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DISCUSSION

PRESIDENT PATTERSON: The discussion will be opened by Dr. Quinby.

DR. WILLIAM C. QUINBY: There is very little that I can add to this excellent presentation by Dr. Ladd and Dr. Lanman.

More overingenious methods have been advocated for the operation of ureterointestinal anastomosis than for any other surgical procedure with which I am familiar. This operation has been most popular with the individual who has just been graduated from the hospital and who wishes to do some research work in the laboratory. He, therefore, invents still another method of anastomosing the ureter with the intestine in the dog. Most of the methods so

advocated should go into the wastebasket. As Dr. Lanman has pointed out, the simpler the method, the better; and the more often one performs this operation, the simpler one tends to make the detail of its execution.

I entirely agree with the technic of the operation, which is advocated by Dr. Lanman and Dr. Ladd. I have always approached the operation with the feeling that it is a plastic one and that, as in any plastic procedure, it is important to cause as little trauma as possible, and to introduce as little foreign material as possible in the way of sutures. With this in view, I have been controlling the bleeding points in the muscular wall of the bowel, not by ligation, but by touching the hemostat with the high-frequency electric current. I have been using no clamps on the bowel as I think that they are apt to be cumbersome. Clamps are not necessary to prevent soiling, because the actual lumen of the bowel is not opened until one is just ready to insert the end of the ureter into it. The opening is made with the electric needle. Furthermore, by not using clamps, one knows exactly what vessels are going to bleed, and these can be controlled as I have already mentioned. I think these are the only points in which my technic differs.

The postoperative career of patients who have been subjected to this operation has interested me because I have found some instances in which the mental condition of the patient has been in need of careful direction. The mother of one patient, especially, wrote that he was doing badly several years after anastomosis for exstrophy. I felt that I had probably made a poor anastomosis and that he was dying of gradual renal failure. As a matter of fact, on getting him back to the hospital, I found that the boy had become practically a recluse because of the realization that he was not like other fellows. His parents had not been sufficiently intelligent to handle the situation.

I have two or three slides. (Slide.) This one shows a diagrammatic representation of the same thing Dr. Lanman has been speaking about. One can easily insert a catheter to outline the ureter and to make it more resistant when suturing the edges of the bowel over it.

One partial mistake that is rather easily made is not to dissect the muscularis from the mucosa loosely enough. One is always a little bit frightened of getting into the lumen of the bowel before one wants to, and there is a tendency to stop this separation of the layers of the large intestine before one really should. Therefore, when the ureter is laid in, and the sides are reunited, there is too much tension on the ureter.

The other point I should like to bring out is that the opening is made by the electric needle, which in itself sterilizes the surrounding mucosa.

(Slide.) This is the preoperative pyelogram of such a case. You see a perfectly normal kidney.

(Slide.) And this is about the allowable amount of postoperative dilatation. The kidney has perfect function, but the pelvis is slightly dilated and slightly longer than normal.

DR. LADD: I might simply emphasize that before treating the series of patients described in this paper we had been through the Coffey technic, and though we have 5 or 6 patients who are living 5 years or more after operation all have interference with kidney function and all had quite a severe postoperative reaction.

Of course, it is possible that it was our fault and not the fault of the operation, but it does seem to us that the very elaborate preoperative preparation that was advocated by Coffey can do nothing but harm and complicates the postoperative convalescence.

Almost all the cases that we did by the Coffey technic or by some modification of it, had a severe temperature reaction immediately or within 2 or 3 days of the operation, and they all had impaired kidney function. With the present technic almost all the temperature charts show an elevation not over 100°F. We have 1 or 2 patients that have shown a little rise in temperature 4 or 5 days afterward. It seems to us that there is a great contrast between our present technic and the one that we used before.

ARTHROPLASTY OF THE ELBOW

BY SUMNER M. ROBERTS, M.D.† AND ROBERT J. JOPLIN, M.D.†

ARTHROPLASTY means the substitution of a surgically constructed joint for a natural one that has been destroyed by disease or injury. Neither the total excision of a joint nor the removal of bony prominences, constitutes an arthroplasty.

It is our purpose to present a series of patients on whom arthroplasty of the elbow has been performed, and to examine the final results. Fortunately, many of these patients have been followed for a long time. Only by so doing could we say anything authoritative about the indications, technic and results of the operation. A majority of the cases were patients with chronic rheumatoid arthritis at the Robert Brigham Hospital. All but one* were operated upon in cooperation with Dr. Philip Wilson to whom entire credit is due for the establishment of the operative technic that has been used.

The simpler the type of joint is, the better suited it is for arthroplasty. The elbow is a simple hinge joint except for the radial element and lends itself to this procedure better than does a more complicated joint, such as the ball and socket of the hip. Furthermore, the elbow does not have to bear weight and, because of this, better results are obtained than in a hinge joint such as the knee. These factors have been recognized since the time that total excision was the accepted treatment for tuberculous joints. This radical procedure was often followed by a considerable amount of function in the elbow, but seldom did any other excised joint regain usefulness.

Since most of these operations have been performed on patients with chronic rheumatoid arthritis, a brief mention of the arthritic problem is desirable. Most patients with rheumatoid arthritis have multiple joint involvement, and the question arises, Which joint shall be attacked first? For the small daily tasks of life, such as eating, drinking, shaving and so forth, the arms are more important than the legs. When both arms and legs are involved, therefore, the arm problem must be attacked first.

It is very important to time this attack properly. No operation of this magnitude should be undertaken until the general arthritic process has been quiescent for at least 6 months. The danger of operation during even a subacute stage of the disease is not that there may be a flare-up in the operated joint, for there is little normal joint tissue left in which to have arthritis after an arthroplasty, but that the strain of the operation may so lower the patient's general resistance that there will be a general flare-up involving the whole body. Some surgeons consider any individual with rheumatoid arthritis an unfavorable subject for this operation, because of the general debility, the extreme bone atrophy and the marked muscle weakness of the patient. While these factors affect the convalescence and discourage the surgeon, they may, nevertheless, be overcome, and, as we hope to show, excellent final results may be obtained.

In order properly to judge the results of this operation, we must first ask, What has been our surgical objective? There are some surgical operations that restore a sick person to his former normal state of health. When we open a boil on the arm, we restore that arm and that patient (after convalescence) to their former perfect health and function. When we remove an infected appendix, we usually restore the patient to his former health. Our objective in most general surgery is to restore our patient to perfect health, and we judge our results accordingly. With the arthritis patient, our objective is somewhat different. Arthritic surgery is, for the most part, major surgery in the truest sense of the word. An arthroplasty is comparable in magnitude to a gastroenterostomy, and it would be a bold surgeon who would say that after a gastroenterostomy a patient would be as good as new. The great objective in arthritic surgery is to make the patient better than he was at the time of operation, and our results must be judged upon the answer to the question, How much better is he? and not to the question, Is he normal? With this in mind, let us consider what has been accomplished by the 23 arthroplasties of this series, which have been followed for periods ranging from 16 months to 11 years.

Sixteen of the patients had elbows that were completely ankylosed before the operation. Three of them had a jog of motion too small to measure, and 3 of them had from 10 to 15 degrees of motion. One elbow had 45 degrees of motion. More women were operated upon than men, the ratio being 12 to 5. Six patients had both elbows operated upon, making a total of 23 elbows in 17 patients. At the time of operation the youngest patient was 15 and the oldest 51 years of age. The ages of all the patients, arranged by decades, are shown in figure 1.

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*We are indebted to Dr. John Kuhns of Boston for permission to include a case of his on which arthroplasty of both elbows was performed.

A normal joint possesses motion, strength and stability. In order to estimate the success of a surgically reconstructed joint, we must consider to what degree these attributes have been obtained. In discussing the amount of flexion restored to these joints, only the total arc of motion has been considered. In every case in which there were less than 90 degrees of motion, the patient's arm was in flexion, the more useful position, rather than in extension. The average gain in motion was 100 degrees. The greatest gain was 155 degrees, and the smallest 25 degrees. It is interesting to note that the maximum gain in motion was acquired in all cases before the end of a year and, in most cases, within 3 months after the operation. Furthermore, there was almost no tendency for the amount of motion to lessen as the years went on (fig. 2).

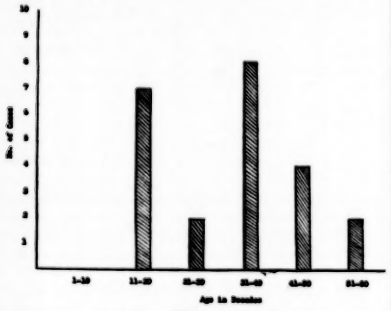


FIG. 1.
Age incidence at time of operation.

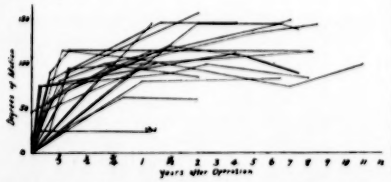


FIG. 2.
Flexion gained by arthroplasty. Note that maximum gain occurs early and is permanent.

The results in regard to pronation and supination are not so good, nor are our data so complete. In many cases, interest was focused on the amount of flexion so that no notes were made about rotation of the forearm, and, if they were made, they were simply commented upon and not recorded in degrees.* Fifteen cases, however, were recorded sufficiently to be tab-

*Normal rotation is considered to be 180 degrees, i.e., 90 degrees pronation plus 90 degrees supination.

CASE 1 (L).
Aged 30?.
G. C. Arthritis
2 yrs.
(Quiescent 2 yrs.)

5 yrs., 5 mos. postoperative.

5 yrs., 5 mos. postoperative.

CASE 2 (R).
Aged 40.
Arthritis 16 yrs.
(Quiescent 7 yrs.)

5 yrs. postoperative.

11 mos. postoperative.

A-P view 5 yrs. postoperative.

CASE 3 (L).
Aged 39.
Arthritis 15 yrs.
(Quiescent 6 yrs.)

5 yrs., 4 mos. postoperative.

Preoperative.

5 yrs., 4 mos. postoperative.

CASE 3 (R).
Aged 40.
Arthritis 16 yrs.
(Quiescent 7 yrs.)

4 yrs., 2 mos. postoperative.

Preoperative.

4 yrs., 2 mos. postoperative.

CASE 4 (R).
Aged 34.
Arthritis 10 yrs.
(Quiescent 2 yrs.)

2 yrs., 2 mos. postoperative.

Preoperative.

2 yrs., 2 mos. postoperative.

CASE 5 (L).
Aged 19.
Arthritis 4 yrs.
(Quiescent 6 mos.)

7 yrs., 9 mos. postoperative.

Preoperative.

7 yrs., 9 mos. postoperative.

ulated, and these may be divided into 3 groups. First, are those cases in which neither the head of the radius nor the lower end of the ulna was resected. The only case in this group lost 55 degrees of rotation. Secondly, are those cases in which the head of the radius was removed but the ulna was left intact. Nine cases in this group gained an average of 44 degrees, ranging from a loss of 60 degrees to a gain of 130. Thirdly, are those cases in which both the radial head and lower end of the ulna were removed. Five such cases gained an average of 80 degrees of rotation, ranging from a gain of 15 degrees to a gain of 135 degrees (fig. 3). We

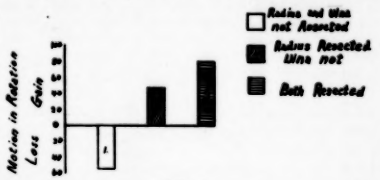


FIG. 3.
Rotation of forearm gained by arthroplasty. Numerals indicate the number of cases.

can conclude, therefore, that so far as restoring rotation is concerned, the head of the radius probably should always be removed, and, in most cases, a portion of the lower end of the ulna, also.

The strength of these elbows after operation depends a great deal upon their stability, and their stability is in inverse ratio to the amount of motion. The strongest and most stable elbows in the series were those that had 100 degrees or less of flexion. Those that had a full range of motion were somewhat unstable (fig. 4). Two

FIG. 4.
X-ray showing amount of distraction possible in an elbow having 155 deg. of flexion following arthroplasty. Motion has been gained at the expense of stability.

patients complained of weakness. Both of them were laboring men, who had received severe injuries to the elbow that resulted in ankylosis. In both of these cases arthroplasty restored motion, 25 degrees and 145 degrees, respectively,

but the elbows were not strong enough to enable the patients to return to labor. No patient complained of pain. Some of the more unstable elbows were, at times, swollen on account of bursal formation, but the patients themselves did not complain of this.

Although motion has been preserved during the length of time that these cases have been followed, certain bony changes have taken place in some instances. In 3 cases the olecranon has grown out into a bony prominence, which has been somewhat unsightly, although painless and not interfering with function. There has also been a tendency for the remodeled olecranon groove to become shallower owing to the wearing down of the olecranon and coronoid process. This has occurred in 3 cases. There have been no operative complications and no postoperative sepsis.

In order to class the results of these cases as successes and failures, we must consider them entirely from a functional point of view. If we attempt to take all factors into consideration, including the appearance of the postoperative x-rays and the cosmetic results, we will simply confuse the picture and lose sight of our original objective, a useful elbow. We must ask both ourselves and the patient what these arms can do that they could not do before and, conversely, what they cannot do after the operation that they were able to do before it. Only when both patient and surgeon agree that the result has been successful can it rightly be considered as such. If there is disagreement between patient and surgeon on this point, the operation cannot be considered a success. All our results have been based on this strict standard of success.

In each of the arthritic cases, the operation has been successful. Both patient and surgeon have agreed on this. In all of them there was a gain in measured degrees of flexion and rotation and an increase in the usefulness of the whole arm. This gives a total of 20 successes out of 23 cases.

The failures fall into 2 classes—failures in technic and failures of judgment. There were two failures in technic. One of these was a case in which the reattachment of the triceps to the olecranon with silk failed to hold, and a dislocation occurred (case 9). This failure in technic was overcome by a second operation in which the triceps was reattached to the olecranon with fascia, and the final result was good. A second technical failure was a patient with traumatic ankylosis of the elbow, who at the end of a year had only 25 degrees of motion. The reason for this small amount of motion is not clear, and possibly this case belongs to the second class of failures.

Two failures did not result from any fault in operative technic or aftercare, but from the at-

CASE 6 (R).
Aged 30.
Arthritis 10 yrs.
(Quiescent 3 yrs.)

6 yrs., 7 mos. postoperative.

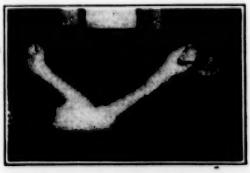
Preoperative. 1 yr. postoperative.

CASE 7 (L).
Aged 41.
Arthritis 10 yrs.
(Quiescent 7 yrs.)

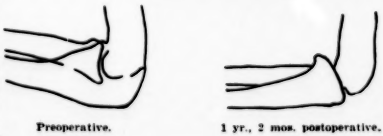
11 yrs. postoperative.

11 yrs. postoperative (flexion). 11 yrs. postoperative (extension).

CASE 8 (L).
Aged 20.
Injury with sepsis 9 yrs. previous.



1 yr., 2 mos. postoperative.



Preoperative. 1 yr., 2 mos. postoperative.

CASE 9 (L).
Aged 39.
Arthritis 6 yrs.
(Quiescent 3 yrs.)

7 yrs., 5 mos. postoperative.

Preoperative.

7 yrs., 5 mos. postoperative.

CASE 9 (R).
Aged 38.
Arthritis 5 yrs.
(Quiescent 2 yrs.)

8 yrs., 5 mos. postoperative.

Preoperative.

8 yrs., 5 mos. postoperative.

CASE 10 (R).
Aged 15.
Arthritis 11 yrs.
(Quiescent 5 yrs.)

Preoperative.

10 wks. postoperative.

16 mos. postoperative.

tempt to perform the operation upon cases that were unsuitable. The first case was that of a laborer who had received a severe fracture about the elbow joint that resulted in ankylosis (case 17). An arthroplasty resulted in the restoration of 145 degrees of flexion and 120 degrees of rotation, but the elbow was too weak to permit the man to return to manual labor. The second case was a patient who had received a fracture of the

FIG. 5.
Drawing and photograph of skin incision.

elbow that was followed by sepsis and ankylosis (case 8). This patient, a girl, had also had infantile paralysis with loss of practically all power in her legs; she used her arms to carry her whole weight, with the aid of near-by furniture and, occasionally, crutches, when moving from chair to chair. After an arthroplasty had been performed she did well for a time, but the remodeled bones of her elbow wore down under the strain until finally the joint was dislocated.

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The patient now has to wear a hinged leather elbow support. This failure again represents an error in judgment in attempting an operation upon a weight-bearing elbow. There have been two deaths, one from anesthesia at the time of a second operation, and one from pulmonary tuberculosis 8 years after operation.

The operative technic used in obtaining these results is as follows:

1. A skin incision is made with the patient on his back and the arm resting across his chest or as nearly so as the involvement of other joints permits. The incision starts on the posterolateral aspect of the lower arm about 3 inches above the olecranon. It follows down the outer

FIG. 6.

Drawing showing start of periosteal reflection and lines along which bones are separated. Photograph of bones just after separation.

border of the triceps tendon, crosses the joint on the outer side of the olecranon as far as the radial head, and then swings radially and crosses the ulnar shaft about 3 inches below the olecranon, thus forming a J (fig 5).

2. This incision is carried down to the bones, and these, including the joint, are exposed sub-

CASE 11.
Aged 15.
Fracture dislocation.

Original injury.

Ankylosis following reduction of postoperative dislocation. (Operation for fracture.)

3 mos. after arthroplasty. (2 yrs. after original injury.)

CASE 12 (L).
Aged 32.
Arthritis 13 yrs. (Quiescent ? yrs.)

1 yr. postoperative.

Preoperative.

1 yr. postoperative.

CASE 12 (R).
Aged 32.
Arthritis 12 yrs. (Quiescent ? yrs.)

2 yrs. postoperative.

Preoperative.

2 yrs. postoperative.

CASE 13 (R).
Arthritis 9 yrs.
(Quiescent 6 mos.)

1 yr., 5 mos. postoperative.

Preoperative.

1 yr., 5 mos. postoperative.

CASE 14 (R).
Aged 19.
Arthritis 10 yrs.
(Quiescent 1 yr.)

8 yrs., 8 mos. postoperative.

Preoperative.

8 yrs., 8 mos. postoperative.

CASE 14 (L).
Aged 19.
Arthritis 10 yrs.
(Quiescent 1 yr.)

8 yrs., 5 mos. postoperative.

Preoperative.

8 yrs., 5 mos. postoperative.

periosteally. This subperiosteal dissection necessarily separates the triceps from its attachment to the olecranon. In keeping close to the bone, the ulnar nerve is reflected together with the soft tissues without being seen or injured. In this manner all except the most anterior aspects of the humerus, ulna and radial head are exposed (fig. 6).

3. The radial head is excised. This may not always be necessary if pronation and supination are normal, but if there is any doubt, it should be done almost as a routine procedure.

4. The bones should then be separated along the lines of the former joint between ulna and humerus. Even when bony ankylosis exists,

FIG. 7.
Drawing and photograph showing remodeling of bone ends.

there is a definite line of cleavage following the old joint contour, which can be followed and which allows separation of the bones without destroying too much of their original shape. When the bones are separated, the periosteum can then be stripped from the anterior portions so that the entire articular surfaces of humerus and ulna, with about 2 inches of their adjacent shafts, are entirely free from soft structures.

The ulnar nerve and the anterior nerves and vessels drop forward with the soft tissues out of harm's way (fig. 6).

5. If any articular cartilage remains, it is carefully removed. The lower end of the humerus is then remodeled with rasp and osteotome so as to form a single condyle that is wide in the anteroposterior view, but narrow in the lateral. No attempt is made to form individual condyles or to reconstruct an intercondylar notch. The ulna is similarly treated so as to form a long, shallow articulation. This necessitates sacrificing a small portion of the coronoid and olecranon processes. During this remodeling process the soft tissues must be carefully protected by damp sponges from contamination with bone dust and fragments (fig. 7).

6. A strip of fascia, which should measure about 6 by 3 inches, is then taken from the outer aspect of the thigh. One end of this strip is placed over the remodeled humerus, gliding surface outermost, and is held in place below the condyles by a purse-string suture. The other end is placed over the reconstructed ulna. If

FIG. 8.

Drawing showing manner of covering remodeled joint surfaces with fascia. Photograph showing fascial covered bones placed in apposition preparatory to wound closure.

Case 15.
Aged 46.
Arthritis 14 yrs.
(Quiescent 6 yrs.)

6 yrs., 7 mos. postoperative.

6 yrs., 7 mos. postoperative.

Case 15 (R).
Aged 45.
Arthritis 13 yrs.
(Quiescent 5 yrs.)

8 yrs. postoperative.

8 yrs. postoperative.

Case 16 (R&L).
Aged 51.
Arthritis 25 yrs.
(Quiescent ? yrs.)

This case has been lost track of; only the following data are available:

Right elbow—55 deg. motion 6 wks. postoperative.
Left elbow—45 deg. motion 8 wks. postoperative.

Case 17 (L).
Aged 39.
Trauma 1 yr. previous.

At the end of one year had 145 deg. motion in flexion, 60 deg. pronation, and 60 deg. supination. Elbow was too weak for heavy work, however.

there is not enough fascia to permit a purse-string suture about the shaft of the humerus or ulna, small drill holes should be made on each side, through which silk sutures can be

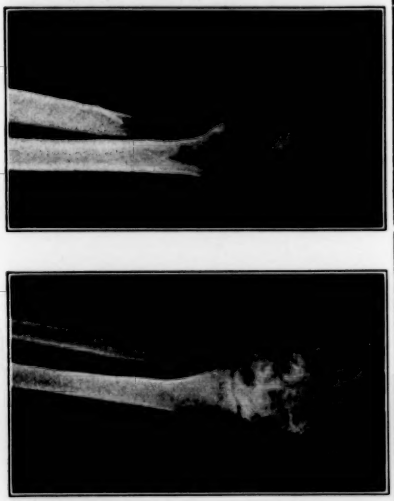

FIG. 9.

X-rays of resected lower end of ulna 8 and 9 years after operation, respectively. Note that there has been no tendency for the bone to reunite.

passed to fix the fascia in place. In this way two layers of fascia are interposed between all bony surfaces (fig. 8).

7. The triceps tendon is then attached to the olecranon by running a fascial suture, which is also taken from the thigh, through a drill hole made in this bone before it was covered with fascia.

8. The remodeled and fascial-covered bone ends are then placed in proper apposition, and the reflected periosteum and soft tissues are closed in layers over them, and the skin is sutured (fig. 8).

9. If pronation and supination are limited even after resection of the radial head, a second incision must be made over the distal end of the ulna, and an inch of this bone resected extraperiosteally, just proximal to the ulna styloid, drawing the soft tissues in between the bone ends with a purse-string suture to prevent reunion (fig 9.)

10. A posterior plaster splint is applied, which the patient wears until the wound is healed and the sutures are removed, at which time active motion is started.

CONCLUSIONS

1. Arthroplasty of the elbow is a successful operation resulting in a useful, permanent amount of flexion, as showed by the results in 20 out of 23 cases.

2. Full motion can be restored by this procedure but is not desirable, as too great a range of motion is accompanied by instability. The optimum amount of motion is 100 degrees.

3. Rotation of the forearm is more difficult to restore than flexion of the elbow. In order to obtain as much rotation as possible, the radial head and usually a portion of the lower end of the ulna should be resected.

4. Arthroplasty gives the patient a mobile elbow that is useful for simple tasks. It does not give a strong, working elbow that is suitable for hard labor.

INTERSTITIAL PREGNANCY RUPTURED THROUGH A TUBAL STUMP

BY EMILIO D'ERRICO, M.D.*

THE relative infrequency of interstitial pregnancy is stressed by most of the writers on ectopic gestation. The incidence of a pregnancy that occurs in the interstitial portion of the tube after unilateral or bilateral salpingectomy, with or without unilateral oophorectomy, however, is still more uncommon. Some of the latter cases are extremely interesting inasmuch as they point rather convincingly to the so-called *external migration of the ovum.*

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REPORT OF A CASE

Mrs. R. McD. (No. 42350) a 29 year old, white housewife, was admitted to the Cambridge City Hospital on March 31, 1934. Her chief complaint was severe abdominal pain with collapse.

The patient was a native of Massachusetts. At the age of 15 she was operated on vaginally for a pelvic abscess. Following this operation she was treated for profuse and distressing vaginal discharge for several years. Her catamenia began at the age of 14. Menstruation occurred every 28 days, its duration was 7 days; it had been painful for 2 years after the pelvic operation but later became painless. She was married at the age of 19 and 2 years later was operated upon because of sterility. The left tube

and part of the left ovary were removed at that time. She had had four normal, full-term children, aged 7, 6, 4 and 1½ years, respectively. There were no miscarriages.

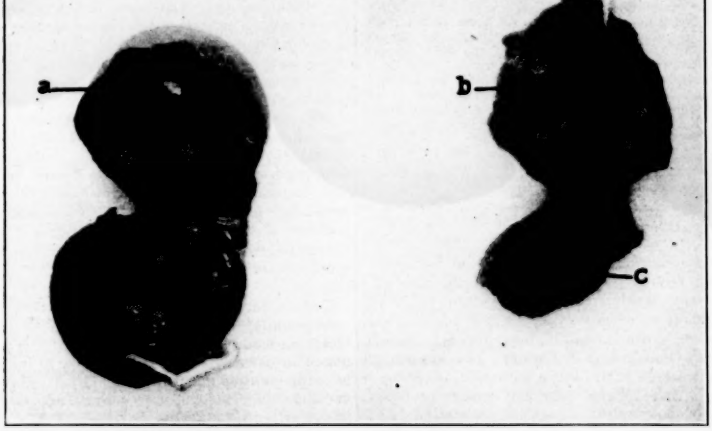
The patient's last normal menstrual period had begun on February 12, 1934. On the night of March 9, she was awakened by severe, colicky, lower abdominal pains that radiated to her back, left shoulder and left leg. The pain was followed by repeated vomiting. These symptoms were relieved by morning with the aid of an electric pad on her abdomen and a drink of hot ginger ale and tea. During the following 3 weeks she felt perfectly well. Three hours before admission she was seized by another attack of severe abdominal pain followed by collapse. Her family physician sent her immediately to the hospital.

On physical examination the patient was well developed but extremely pale with an anxious expression. Both knees were drawn up, and she complained of severe abdominal pain. The skin was cold and clammy, and her forehead was covered with cold perspiration. The pupils were equal and reacted to light and distance; there was slight nystagmus, and the conjunctivae were pale and lusterless. The tongue was pale and not coated. The heartbeat was not seen or felt, the sounds were very distant but rhythmical and the rate was 164 per minute. The pulse was imperceptible at the wrists. The lungs were clear and the respiratory rate was 28 per minute. The temperature was 95°F, and the blood pressure was too low to measure. The abdomen was full and doughy with a midline scar. It was tender throughout, especially over both lower quadrants, with moderate muscle resistance and no palpable masses. There was shifting dulness and the "bed-shaking test" was positive.[1] A bimanual examination revealed a multiparous introitus with good perineal support. The cervix was soft, and the external os closed. There was marked tenderness throughout the pelvis. The fornices were full, and there were no palpable masses. The position and size of the uterus were not determined because of the tenderness and resistance of the abdominal wall.

Examination of the blood showed: red blood cells 2,140,000, white blood cells 14,200 and hemoglobin 40 per cent. The blood was group III. The urine was clear, yellow and slightly acid, and did not contain albumin, sugar, pus, blood or casts. Its specific gravity was 1.020.

A preoperative diagnosis of a ruptured tubal pregnancy was made. A laparotomy was performed under gas-oxygen-ether anesthesia. A lower midline incision was made with excision of the old scar. The abdominal cavity was found to be distended with a large amount of fresh and clotted blood. This blood was scooped out and collected into a sterile basin containing 200 cc. of warm saline and 50 cc. of a 5 per cent sodium citrate solution and was handed over to an assistant to be strained. The patient was then placed in Trendelenburg's position. Exploration of the pelvis disclosed an asymmetry of the uterine fundus. The left horn was bluish, swollen and definitely raised (Ruge-Simon's sign[2]), and there was very slight bleeding from a piece of placenta-like tissue that was protruding through the dilated lumen of the left tubal stump. The left ovary had degenerated into a cyst the size of a hen's egg and was firmly adherent to the left broad ligament. The right tube was normal in size and color and its fimbriated end was patent. The right ovary was also normal and presented a cyst-like mass, the size of a hazelnut, that was firm and yellowish, and that represented the true corpus luteum of pregnancy.

It was apparent that, although there was a ruptured pregnancy, its location was interstitial rather than tubal. The left cornual mass was, therefore,



a. Bisected corpus luteum cyst. b. Cornual end of tube with ovum cavity. c. Placenta protruding from tubal stump. (Enlarged twice normal size.)

excised by cutting a cuneiform section, and the raw surfaces were approximated with two figure-of-eight sutures of No. 2 chromic catgut. The left ovarian cyst was dissected and removed. The right corpus luteum cyst was also removed for pathological investigation. A ventrosuspension, after Kelly's method, was also done. Three hundred cubic centimeters of warm saline solution were poured into the peritoneal cavity, and the abdominal wall was closed in layers without drainage.

During the operation 1,000 cc. of salt solution were given subpectorally. The blood and clots that had been recovered from the peritoneal cavity plus the salt and citrate solutions measured 1,600 cc. This was strained through several layers of gauze and yielded 1,000 cc. of diluted blood, which was at once injected into the patient's right basilic vein. This was followed by a striking improvement in the patient's color and pulse.

The convalescence was uneventful. When she was discharged from the hospital on April 14, 1934, her abdominal wound was healed by first intention, her uterus was anterior and adherent to the lower end of the scar, and the vaults were free. The hemoglobin was 65 per cent. Her appetite was excellent, and she was free from any distressing symptoms.

The pathological report by the Leary Laboratory was as follows:

"Received left cornu of uterus, cyst from right ovary, and the membranous wall of a cyst of the left ovary in formalin gauze, April 2, 1934.

"*Gross Examination:* The cornu of uterus measures 2.5 cm. in diameter, 1 cm. in thickness. The uterine cornu is dilated to form the wall of a sac, approximately 1.5 cm. in diameter, filled with a soft, grayish tissue and a blood clot. The outer wall has a slit to which a small, chorionic sac, 3 cm. in length, is attached by a narrow pedicle to the mass within the cavity. The sac is empty and pale, measures approximately 1.2 cm. in diameter.

"The cyst of the right ovary is globular, 2.5 cm. in diameter, shows on section a lutein layer 2 mm. thick, about a central, smooth-walled sac filled with a serous fluid.

"The membranous wall of the cyst from the left ovary is irregular; measures 4 by 3 cm. in its greatest dimensions. One surface is rough as though there had been adhesions attached, the other smooth and glistening.

"*Microscopic examination* of chorionic sac and cyst of right ovary confirms gross findings. Cyst of left ovary shows, in part, a thin, fibrous lining covered by a layer of flattened cells, elsewhere groups of lutein cells are found beneath lining.

"DIAGNOSIS:

1. Interstitial (cornual) pregnancy, left.
2. Cystic corpus luteum, right.
3. Simple and lutein cyst, left."

ETIOLOGY

The conditions generally accepted as predisposing factors in ectopic pregnancies are: (1) those associated with the end results of pelvic inflammation of any type, such as chronic salpingitis, chronic salpingo-oophoritis, chronic metritis and pelvic adhesions; (2) congenital defects, such as infantile fallopian tubes with lack of cilia, diverticula and accessory tubes; and (3) mechanical distortion, angulation or occlusion of the lumen by new growths within or without the fallopian tube. Di Palma[2] believes that postpartum and postabortal infections, rather than gonorrheal infections, are the principal factors in previous inflammations leading to ectopic gestations. As evidence, he offers the fact that in the gynecologic wards of the Harlem Hospital, where over 75 per cent of the operations for adnexal disease are performed on colored women for gonorrheal infection, the occurrence of ectopic pregnancy in Negroes is very small, over 90 per cent of the cases occurring in white patients.

FREQUENCY

It has already been remarked that the incidence of interstitial pregnancy is extremely small. The first American paper was by Fitz[3] of Boston. He reported a series of 18 cases in 1875. In a series of 2,405 cases of ectopic gestation collected by Wynne[4] in 1929, there were 40 of the interstitial type, or 1.66 per cent. More recently, Ash[5] has stated that there are probably no more than 200 reported cases that will withstand critical analysis as to the accuracy of the diagnosis.

The incidence of interstitial pregnancy occurring in the stump of a resected tube is, therefore, very small. In a careful listing I have found only 23 reported cases, including my own.

PHYSIOLOGY AND PATHOLOGY

After reading some of the reported cases, a pertinent question arises, how does fertilization take place? One can only speculate on the possibilities. In the above case report, the interstitial pregnancy occurred in the left horn and the corresponding tube had been removed 8 years previously. The true corpus luteum was found in the right ovary. The ovum, therefore, may either have become fertilized in the right tube, then crossed the uterine cavity and entered the uterine orifice of the left tubal stump, where it was arrested by adhesions that resulted from the salpingectomy; or it may have lodged in a hypothetical diverticulum, which process was followed by nidation. Both these hypotheses are looked upon as extremely improbable by Chabrut[6] and Richardson.[7] The more tenable hypothesis is that the ovum was fertilized near the right ovary and that it then migrated toward the left side and entered the left tubal stump.

Certain facts indicate the possibility of such *external migration* of the ovum. There is an observation made by Dujarier[8] of a full-term pregnancy in a woman who had previously had her left tube and right ovary removed. Further evidence that tubal stumps may become patent and capable of allowing entrance to the fertilized ovum is given in the case reported by Nacke,[9] who found an interstitial pregnancy in

a patient 3 months after he had attempted to sterilize her because of pulmonary tuberculosis; he had removed the fallopian tube on each side, together with a wedge of uterine tissue. It follows that it may take from 3 months to 8 years for tubal stumps to become patent, and it does not apparently matter if the cornual portion of the tube has been resected at the original operation. To impress one with the difficulties involved in securing a successful sterilization in some instances, it is interesting to compare the cases of Keller, Wendeler, Voutrin and Ries, as quoted by Weiss.[10] These men reported cases of tubal pregnancy that developed in the stump of a tube after vaginal hysterectomy.

Whatever the etiologic factor is, nidation may take place in the lumen of the tubal mucous membrane of the cornual end. Waegeli,[11] in his careful investigation of interstitial pregnancy, says that, if the growth were intracanalicular, we should expect, in each case, to find the ovum cavity communicating with the uterine cavity by means of the uterine opening of the tube. In such cases where the ovum and uterine cavities have been found to communicate, he considers that there has been a rupture of the muscular septum between them rather than a dilatation of the uterine opening. His microscopical findings support this contention, as in one case he traced the lumen of the interstitial part of the tube and found it to be complete and separate from the ovum cavity. He concludes that when implantation occurs in the interstitial part of the tube where the mucous membrane is thin and uncomplicated by folds, the ovum finds itself in direct contact with the uterine musculature, thus differing from uterine implantation in which the thick decidua prevents contact between ovum and muscle. For similar reasons, it differs from tubal implantation in which there is a partial decidual reaction. Litzenberg[12] summarizes the pathology as follows: "Interstitial pregnancy differs from other types of ectopic gestation only as the peculiar anatomical conditions which surround it may modify its progress; the source and structure of the intramural tube lead to implantation near the posterior wall of the fundus. The structure of the tube and the uterine wall favor early rupture of the tube and late rupture of the ovum capsule, otherwise interstitial pregnancy repeats most of the features of ectopic gestation elsewhere."

With the growth of the ovum, the uterine wall becomes gradually thinner until it eventually consists of a thin layer of muscle, periuterine connective tissue and serosa, which causes a bulging or tumorous mass on the involved side. Upon the location and dissection of this mass depend the two classical signs that are of great importance in the anatomic diagnosis of interstitial pregnancy. The so-called Ruge-Simon sign[5] consists in an elevation of the involved cornu and a displacement of the fundus toward the opposite side. The uterus is rotated on its long axis, and the tube is inserted into the inferior surface of the enlargement. This sign may not be apparent if the uterus is fixed by adhesions. The Baart de la Faille[5] sign must show that the sac is attached to the fundus by a broad base because, if the gestation sac is attached to the uterus by a pedicle, an interstitial pregnancy cannot be present.

In addition, the uterus usually shows changes present with other forms of ectopic pregnancy, that is, some general hypertrophy, softening of the cervix and decidual reaction. Rupture occurs most commonly during the third month, but cases have been reported as early as the first month and as late as the seventh month. Rupture usually occurs into the peritoneal cavity and, in most cases, is accompanied by profuse hemorrhage.

DIAGNOSIS

A definite diagnosis of interstitial pregnancy can only be made at operation. A history and findings suggestive of an ectopic gestation and the detection of a growing tender mass on one of the uterine horns may lead one to suspect the presence of such a condition.

TREATMENT

Laparotomy with excision of the involved uterine muscle containing the sac is indicated in every case. If the pregnancy has advanced too far, supravaginal hysterectomy may be the operation of choice. Aiming to avoid the occurrence of this condition, Guibé answers several of his own pertinent queries. "Can we derive any deductions upon the therapeutic point of view? Should we remove the other tube in cases of tubal pregnancy? Recurrences of extrauterine pregnancies are rather uncommon, whereas it is common to see normal pregnancies following operations for ectopics. Is it necessary to remove the cornual end of the tube? This would complicate an operation that should remain a simple one. I believe, then, that we should regard such cases as inevitable rarities really not to be feared."

Since the blood loss in these cases is almost always excessive, the necessity for a blood transfusion is imperative. In the absence of a compatible donor, an autotransfusion should be carried out, if sufficient fluid blood can be recovered from the peritoneal cavity. This blood should be diluted with normal saline solution and sodium citrate and should be filtered before use.

SUMMARY

(1) Interstitial pregnancy that ruptures through a tubal stump is the rarest form of ectopic gestation.

(2) The reported case presents striking evidence of *external migration* of the ovum.

(3) Excision of the cornual portions in salpingectomies may prevent the occurrence of interstitial pregnancy.

(4) The value of autotransfusion in an emergency should always be kept in mind when operating upon cases with extensive intraperitoneal hemorrhage.

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DOUBLE KIDNEY PELVIS, AND NONFUSION OF THE LAMINAE OF THE FIRST AND FIFTH LUMBAR VERTEBRAE IN EACH OF TWINS*

BY RAYMOND A. HARPIN, M.D.†

MISS M. N., a white woman aged 24, was admitted to the Massachusetts Memorial Hospitals in October, 1931. She complained of pain in the right side of the back and stated that 4 weeks previously she had had a sharp transient pain starting over the right kidney region and radiating down to the right groin. These attacks increased in frequency and were accompanied by some frequency and burning. No hematuria was noted.

On October 30, 1931, Dr. Ralph C. Wiggin and the writer performed a cystoscopy on the patient under caudal anesthesia. The urethra and bladder appeared to be normal except for small ureteral orifices. No. 4 catheters were passed to both kidneys with ease. Specimens of the urine were collected for culture and microscopic examinations, and pyelograms were taken. The findings on the left side were normal, but on the *right* a double kidney pelvis

FIGURE 1. Miss M. N. Pyelogram showing a double kidney pelvis on the right side.

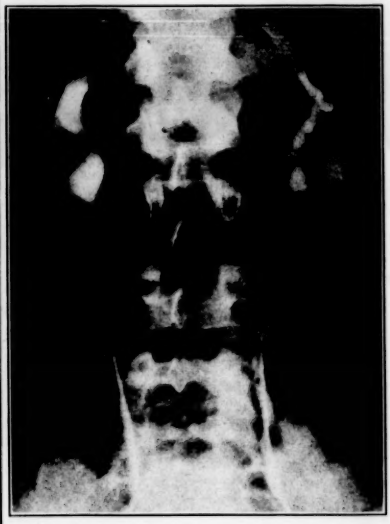

FIGURE 2. Mrs. M. P. Pyelogram showing a double kidney pelvis on the left side.

*Evans Memorial, Massachusetts Memorial Hospitals.

†Harpin, Raymond A.—Second assistant visiting surgeon, Massachusetts Memorial Hospitals. For record and address of author see "This Week's Issue," page 670.

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was seen (fig. 1). When the patient was informed of this, she said that her twin sister had the same condition on the opposite side. The plate also revealed a nonfusion of the laminae of the first and fifth lumbar vertebrae.

In July, 1936, Mrs. M. P. (Miss N.'s twin sister) was admitted to the Evans Memorial. On July 17, I performed a cystoscopy and found a double kidney pelvis on the left (fig. 2). The other urinary findings were within normal limits. Nonfusion of the laminae of the first and fifth lumbar vertebrae was again observed.

Through the kindness of Sergeant Stanley A. Gaw of the Boston Police Headquarters, finger-prints of the twins were obtained with the following results:

Miss M. N.	19	1	UOOI	0
	16	5	UOOI	19
Mrs. M. P.	19	9	UOO(M)	17
	15	2	UOO(I)	15

It is obvious that the prints are not identical.

In August, 1936, gastrointestinal series showed a spastic colon in each of the twins. The Graham tests were negative, as well as the x-rays of the skull, sella and chest.

It has often been stated that one homologous twin is the mirror of the other. In this instance both sisters look remarkably alike, and their congenital kidney deformities are the mirror images of one another. Incidentally, their father is also one of twins.

These cases are presented because of their interest, and because a survey of the literature has failed to disclose a similar occurrence.

The Massachusetts Medical Society

PROCEEDINGS OF THE COUNCIL

Special Meeting, February 24, 1937

A SPECIAL meeting of the Council was held in John Ware Hall, Boston Medical Library, 8 Fenway, Boston, on Wednesday, February 24, 1937, at 11:00 a. m. There were 114 Councilors present. (See Appendix.)

The President called the meeting to order and asked the Secretary to read the petition on which the meeting was called. The petition is as follows:

Boston, Massachusetts
February 8, 1937

Dr. Charles E. Mongan, President
Massachusetts Medical Society
8 Fenway
Boston, Massachusetts

Dear Dr. Mongan,

In compliance with the provision of Section 1, Chapter IV, of the by-laws of the Massachusetts Medical Society, the undersigned members of the Council request that a special meeting of the Council be held as soon as it can be arranged, to reconsider the action of the Council on House bill 1200 and to consider other legislative matters that may properly come before the Council.

Sincerely yours,

FRANCIS P. MCCARTHY, Norfolk
ROBERT L. COOK, Sec., Norfolk South
EDWARD J. O'BRIEN, JR., Middlesex South
RALPH R. STRATTON, Middlesex East
KENNETH L. MACLACHLAN, Middlesex East
RICHARD DUTTON, Middlesex East
JOSEPH H. KERRIGAN, Middlesex East
EDWARD M. HALLIGAN, Middlesex East
FREDERICK O. WEST, Middlesex East
J. HARPER BLAISDELL, Middlesex East.

The President read Section 2 of Chapter IV of the by-laws, which is as follows:

"Twenty Councilors shall constitute a quorum. The deliberations of the Council shall be governed by parliamentary usage as contained in *Robert's Rules of Order* when not in conflict with the By-Laws of the Society."

He ruled that reconsideration of the previous action would be illegal at this time and suggested that the matter might be handled by a motion to rescind the action taken at the meeting held on February 3, 1937, but, under those circumstances, it would be necessary to obtain a two-thirds vote of the Councilors present in order to rescind the previous action. He asked the Secretary to inform the Council of the procedure which had been followed in bringing the legislative material before the Council meeting on February 3.

The Secretary stated that the Committee on State and National Legislation at a meeting, held on Saturday, January 30, considered the various bills which had been introduced into the Legislature and which appeared to concern the medical profession. Definite action was taken upon certain bills but it was deemed wise to refer certain matters which might be of a more controversial nature to the Council for instruction. For this reason the President reported to the Council on February 3 the attitude of the Committee and specifically asked for instruction on House bill 34, which would require annual registration of physicians, and likewise on four Appendices to House bill 1200, which contains recommendations for legislation proposed by the Commission on Public Health appointed by the Governor in May, 1935. The Secretary announced that the Council voted on February

3 to support House bill 34 and that the count showed 71 in favor and 38 opposed. The stenographer's notes show that the Appendices to House bill 1200 were favored without opposition and that the President announced it to be a unanimous vote.

The President then proceeded to take up the questionable bills in order.

On motion of Dr. Walter A. Lane, Norfolk, seconded by Dr. Shields Warren, Suffolk, the Councilors voted to rescind the action taken on House bill 34 at the Council meeting of February 3, and the count showed 64 voting to rescind and 30 opposed. The Chair ruled that, since the necessary two-thirds vote had been obtained, the previous vote was hereby rescinded. The discussion which preceded the vote was extensive and, before the final vote was taken and the count made, Dr. Stephen Rushmore, Secretary of the Board of Registration in Medicine, was invited to appear before the Council to explain the bill and to answer questions. Before he was excused from the meeting, the Council voted unanimously to thank Dr. Rushmore for his kindness and courtesy in explaining the provisions of the bill.

The President announced that House bill 34 had already been heard by the Committee on Public Health and that, as he was aware of the plan to hold a Special Meeting of the Council, he reported to the Legislators that the Council would reconsider the matter and was informed by the Chairman that the Committee would withhold final action pending receipt of a communication which would inform the Committee of the final action taken, together with a record of the vote. After further discussion it was finally moved that the Chair appoint a committee of three to confer with Dr. Rushmore for the purpose of suggesting certain modifications of House bill 34.

The Council next considered Appendix 40 to House bill 1200 entitled "An act providing for the care of premature infants." After considerable discussion, during which the objection to the wording of the bill was pointed out by Dr. Richard Dutton, Middlesex East, it was finally moved by Dr. Francis P. McCarthy, Norfolk, seconded by Dr. Shields Warren, Suffolk, to rescind the action of the Council on February 3 supporting the bill. The count showed 64 Councilors voting to rescind and 20 Councilors opposed. The President announced that, since the necessary two-thirds vote had been obtained, the action of the Council of February 3 with reference to this bill was rescinded.

It then developed that the chief objector, Dr. Dutton, felt that there would be no objection to the bill provided the request for the transportation of the premature infant be based upon the attending physician's recommendation. (It has since been learned that the wording of this bill will probably be altered to accomplish this result.)

Appendix 48 of House bill 1200 entitled "An act providing for the hospitalization of patients with chronic rheumatism" was next presented for discussion and Dr. Francis P. McCarthy, Norfolk, moved that the Council rescind the action taken at the February 3 meeting when it voted to support this bill. The motion was seconded by Dr. Lane, Norfolk. There was an extensive discussion, and the President presented the reasons for the recommendation by the Commission on Public Health, to which had been referred by specific action of the Legislature the question of hospital construction for individuals suffering from chronic rheumatism and infantile paralysis. He explained that, in the opinion of the Commission and of the members of the special committee which had studied the subject, it was unwise to recommend construction of hospitals until more was known regarding the etiology and treatment of the disease, that the recommendation, which was embodied in this bill, was designed to permit study and research in a carefully limited group of cases and that it is not intended that hospital construction be undertaken. He explained that the patients were to be received on recommendation of the family physician and were to be returned to him with recommendations regarding care after the study had been made. On vote it was found that there were 7 Councilors voting to rescind and 73 voting against rescinding. The President therefore announced that the motion to rescind was lost and that the action of the Council on February 3 to favor this bill was confirmed.

There was next presented Appendix 47 to House bill 1200 entitled "An act providing for insulin and emergency hospitalization for certain diabetics and for digitalis for patients with heart disease." After an explanation of the proposal contained in this bill it was moved by Dr. Channing Frothingham, Suffolk, seconded by Dr. William H. Robey, Suffolk, that the previous action of the Council supporting this bill be confirmed. The motion passed unanimously.

Appendix 54 of House bill 1200 entitled "An act with reference to the procedure for bringing suits against employees of the department of mental diseases and physicians testifying in commitment proceedings" was then presented and, on motion of Dr. Frothingham, duly seconded, the Council voted unanimously to support the action taken on February 3 favoring this legislation.

House bill 1255 entitled "Bill relative to the selection of physicians under the workmen's compensation law" was next presented. The President explained that the hearing had been held on this bill but that no one had appeared

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in support of it and that he did not believe the Committee would give it further consideration. It appeared that, while the bill might have been offered with good intentions, in its present form it was not satisfactory, and on motion of Dr. J. Forrest Burnham, Essex North, duly seconded, it was voted to oppose House bill 1255 as drawn.

The President announced the conclusion of the business for which the meeting had been called but stated that, because of the loss of Dr. Robert B. Greenough, a former President of this Society and a prominent participant in its committee work, he would appoint a committee consisting of Dr. Walter P. Bowers, Dr. Franklin S. Newell and Dr. Charles S. Butler to take appropriate action.

He next announced appointments to fill the vacancies caused by Dr. Greenough's death. Dr. Shields Warren was chosen Chairman of the Cancer Committee and Dr. William H. Robey was chosen Chairman of the Committee on Permanent Home.

Since there was some misunderstanding regarding the relation of Fellows of the Society to the American Medical Association, the President informed the Councilors that a Fellow of the Massachusetts Medical Society was automatically a member of the American Medical Association but to be a Fellow of the American Medical Association a person must subscribe to the *Journal* of that organization and be enrolled in the scientific assembly. This is important since those who are not Fellows of the American Medical Association are not eligible to certain offices.

The President announced that there would be a hearing at the State House on Monday, March 1, on the two bills which are designed to establish systems of compulsory health insurance. He urged as many as possible to be present and record their opposition.

The meeting adjourned at 2:00 p. m.

ALEXANDER S. BEGG, M.D.,
Secretary.

APPENDIX

ATTENDANCE OF COUNCILORS

BARNSTABLE
M. E. Champion

BRISTOL NORTH
A. R. Crandell

BRISTOL SOUTH
J. M. Bonnar
E. F. Cody

ESSEX NORTH
C. F. Warren
R. V. Baketel
C. S. Benson
J. F. Burnham
G. L. Richardson
W. D. Walker

ESSEX SOUTH
N. P. Breed
J. F. Donaldson
R. E. Foss
J. F. Jordan
B. B. Mansfield

HAMPDEN
F. H. Allen
E. P. Bagg, Jr.
J. L. Chereskin
A. G. Rice

MIDDLESEX EAST
J. H. Kerrigan
Richard Dutton
E. M. Halligan
K. L. Maclachlan
R. R. Stratton

MIDDLESEX NORTH
F. P. Murphy
T. A. Stamas

MIDDLESEX SOUTH
C. F. Atwood
E. W. Barron
C. E. Barstow
E. H. Bigelow
G. F. H. Bowers
F. R. Clark
B. F. Conley
H. F. Day
D. C. Dow
W. G. Grandison
F. A. Higginbotham
A. A. Levi
F. P. Lowry
L. W. McGuire
J. A. McLean
Edward Mellus
C. E. Mongan
J. P. Nelligan
E. J. O'Brien, Jr.
W. D. Reid
E. S. A. Robinson
E. J. Sawyer
E. F. Sewall
H. P. Stevens
H. W. Thayer
Fresenius Van Nüys
R. H. Wells
M. W. White
W. S. Whittemore

NORFOLK
Maurice Gerstein
F. G. Balch
H. G. Batchelder
A. S. Begg
H. K. Boutwell
F. S. Cruickshank
D. G. Eldridge
H. M. Emmons
C. B. Faunce, Jr.
I. A. Finkelstein
J. F. Ford
W. A. Griffin
J. B. Hall
G. W. Kaan
C. J. Kickham
H. M. Landesman
W. A. Lane
J. S. H. Leard
F. P. McCarthy
Frederick Reis
A. T. Ronan

NORFOLK SOUTH
C. S. Adams
R. L. Cook
W. G. Curtis

PLYMOUTH
W. T. Hanson
L. B. Hayden

SUFFOLK
Conrad Wesselhoeft
A. W. Allen
Walter Bauer
C. S. Butler
Lincoln Davis
R. L. DeNormandie
J. M. Doran
G. B. Fenwick
Channing Frothingham
Joseph Garland
G. L. Gately
E. P. Joslin
C. C. Lund
L. S. McKittrick
N. A. Nelson
J. P. O'Hare
R. B. Osgood
L. E. Parkins
W. H. Robey
G. C. Shattuck
R. M. Smith
M. C. Sosman
E. F. Timmins
Shields Warren

WORCESTER
G. A. Dix
G. E. Emery
E. R. Leib
W. F. Lynch
A. W. Marsh
J. W. O'Connor
F. H. Washburn
R. P. Watkins

WORCESTER NORTH
H. R. Nye

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTEMORTEM AND POSTMORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 23151

PRESENTATION OF CASE

A 46 year old American housewife was admitted complaining of pain in the left great toe.

The patient had been well until 3 years before entry, when she developed severe "gastritis." This was treated medically and gradually subsided over a period of 6 months. Two and a half years prior to admission she developed a severe cold, which was associated with a septic sore throat. This was followed by erysipelas, and this in turn, after 2 weeks, by a polyarticular arthritis. During the succeeding 2 years her joints occasioned considerable discomfort but gradually improved so that only her knees and left ankle continued to be troublesome. Three months before coming to the hospital, she developed dull, aching pain in the left great toe. This was continuous and was associated with local heat and occasional attacks of sharp, stabbing pain, chills, fever and diaphoresis. The toe became swollen during the day, but the swelling usually disappeared after rest. Currently, the skin over the toe became reddened, and motion was painful although weight-bearing was possible.

Physical examination showed a thin, middle-aged woman with a sallow, rather washed-out appearance. There were fine, slightly brownish, wedge-shaped deposits in the sclerae on either side of the corneae, with their apices at the corneal borders. The heart was normal. The blood pressure was 115/80. The lungs were clear. The spleen extended 8 centimeters beneath the costal margin, and its edge was firm and not tender. The liver also extended 7 centimeters beneath the costal margin. There was pitting edema of the left foot and ankle. The left hallux was brownish, swollen and tender, and motion in any direction was painful and elicited crepitus. There was tenderness beneath the left external malleolus, and movement of the ankle was restricted. The lower fifth of the anterior border of the left tibia was roughened and thickened.

The temperature was 100°F., the pulse 90. The respirations were 20.

Examination of the urine was negative. The blood showed a red cell count of 4,500,000, with a hemoglobin of 80 per cent. The white cell count was 8,200, 85 per cent polymorphonuclears. A stool examination was negative. The blood showed a uric acid of 3.4 milligrams per cent and a serum cholesterol of 102 milligrams per cent. The serum protein was 7.7 grams per cent. The blood calcium was 10.2 milligrams per cent, the phosphorus 3.7 milligrams per cent and the phosphatase 25 units. An intravenous injection of Congo red showed 73 per cent retention of dye in the serum at the end of 1 hour. On two occasions the blood Hinton test was positive and the Wassermann test moderately positive. On two other occasions the Hinton test was negative. Later, with the usual amount of blood serum (0.5 cubic centimeter), a final Hinton test was negative, but with dilutions using 0.1 cubic centimeter and 0.3 cubic centimeter of serum it gave a positive reaction.

An x-ray film of the chest showed a small amount of fluid in the right pleural cavity. The bones of the pelvis, skull and dorsal and lumbar spines appeared to be normal, but there was marked bone destruction involving the proximal phalanx of the left great toe. In its shaft there was a pathologic fracture without evidence of new bone formation. There were a 2.0 centimeter area of bone destruction in the upper shaft of the tibia and multiple small areas of destruction involving the lower shaft, with dense periosteal new bone formation in this region. Similar areas of destruction were present in the lower portion of the left femur, the os calcis, the upper portions of the right tibia and fibula, the lower portion of the right femur, and the right radius, ulna and humerus. The bones of the hands and wrists appeared normal except for slight decalcification.

Shortly after entry the patient's temperature returned to normal and remained so thereafter. On the ninth hospital day a biopsy of the upper end of the left tibia was performed.

DIFFERENTIAL DIAGNOSIS

DR. J. H. MEANS: The first thing that one thinks of with the complaint of pain in the great toe is gout. However, I think we shall find that this is not gout.

On the basis of the history, since we thought of gout in the beginning, we might point out that the rest of the story does not seem to suggest it in any way. Gout is a paroxysmal disease with sharp attacks of severe pain that clear up, and there is a period of freedom from symptoms and then recurrence; but this is described as a steady, dull pain with superimposed attacks of sharp pain. It is interesting that she had

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"gastritis" 3 years ago. Perhaps of more interest is the fact that she apparently had a series of streptococcic infections,—a sore throat, then erysipelas and, following that, a polyarticular arthritis,—which may have been a sequel to streptococcus infection. It seemed to clear up gradually. I do not think that the arthritis in any way suggests gout. I would also point out that we have to take into consideration the group of symptoms of chills, fever and sweating, which suggests infectious disease of some sort, and also the story that at times the toe was swollen and red. In other words, the cardinal manifestations of inflammation were present.

"The lower fifth of the anterior border of the left tibia was roughened and thickened." That always makes me think of syphilis.

The description of the toe is of interest. If I had that description and nothing else, and the word "crepitus" had not been mentioned, I would think it would do for gout after all, except perhaps the brownish part; the fact that it was swollen and tender suggests gout. As a small boy I was told that if you put a thumb screw on and turned it until you could not stand it any more, that was rheumatism, and if you turned once more, that was gout. Which category this patient's pain would fall in, I do not know.

So far as I know, the only thing that Congo red is used for is to test for amyloid disease. If amyloid disease is present, the dye is removed almost completely from the blood stream. In this case it was not removed, although I am told that usually about 90 per cent stays in the serum at the end of 1 hour.

I absolutely refuse to attempt to interpret these serologic findings. I would have to ask a serologist whether they should be interpreted as positive or doubtful.

DR. TRACY B. MALLORY: The idea of trying these various dilutions was that possibly the serum might be so strong that one would get a prezone, as in the Widal test. You will remember that with a very strong serum in typhoid fever one frequently gets no agglutination with the lower dilutions, whereas highly diluted serum causes beautiful agglutination. In this case the blood Hinton test was positive only with diluted serum. The Hinton test is, however, more sensitive and more apt to show a prezone than the blood Wassermann.

DR. MEANS: At any rate, the blood Wassermann was positive. The bone lesions in this case seem confined to the lower extremities. I would like to know what the radiologist has to say about them.

DR. GEORGE W. HOLMES: This is the toe in question. All of the bones of the left foot show a moderate amount of decalcification, which is more marked in the great toe than in the other toes, and more in the terminal phalanx of the great toe than in the other bone. In the proximal phalanx you will see a lesion which is destructive and accompanied by fracture. There is some evidence of periosteal proliferation and some evidence of thickening of the soft tissues, without definite evidence of tumor. Here are the hands. They were reported as negative, and I think rightly so. The lesion in the chest is apparently in the pleura. The costophrenic angle is obscured on the right side. The lung markings are a little prominent. The heart shadow is within normal limits. The position of the diaphragm on the right side is of some interest. There is some evidence of pleurisy on the right, and one would naturally expect the diaphragm to be higher on that side; but it is distinctly lower, and that may mean that the spleen is enlarged. We have no note as to the respiratory movements of the diaphragm or of its position in the variable phases of respiration. I see no lesion in the ribs or in the other flat bones. It is interesting that the pelvis is quite free from disease and that the spine and skull are free. In other words, the lesion seems to affect the long bones and to stay away from the flat bones. When we check the lesions in the other bones, they do not vary particularly from the lesion in the great toe. They are destructive and also proliferative. We have periosteal new bone formation over the involved areas and, at the same time, evidence of destruction of the cortex. In none of these areas does the lesion invade the joint, although you can see that it comes very close to the joint. That is considered evidence against infection. An infection that close to the joint usually involves it. I think we can say, so far as the x-ray appearance goes, that the lesions are due to a neoplasm and not to an infection.

DR. MEANS: Dr. Holmes, mention was made of the roughening of the tibia on the left side. What can you say about that?

DR. HOLMES: Over the lower end of the tibia there is some periosteal roughening, but it is not the lesion of syphilis. The lesion in the bones could be due to syphilis. When I said infection, I did not include syphilis. I do not think the lesion is characteristic of syphilis. It is more characteristic of a neoplasm.

DR. MEANS: We have to explain in this case the combination of a big liver, a big spleen, some pigmented areas in the cornea, multiple bone lesions involving the lower extremities and no other parts of the skeleton, some fluid in the chest and certain other symptoms. All I can do is to write down a list of all the things that I can think of that would account for all or part of the picture and discuss them pro and con.

I am not familiar enough with the x-ray pic-

ture of gout to know if this could be gout. I would simply say that the clinical picture does not appear to me like gout. Do you see anything that looks like it, Dr. Holmes?

DR. HOLMES: No.

DR. MEANS: Let us rule it out.

I expect that the patient had syphilis. I do not see how we can dismiss the positive serology. There is nothing in the history for or against syphilis in the past, unless the "gastritis" had something to do with syphilis or the sore throat

CASE 25151. Forearm and tibia at time of entry.

was connected with it. Syphilis can explain multiple bone lesions, a periosteal lesion, a big liver and spleen, and so on. This toe cannot be a Charcot joint because such joints are painless. This one was painful. The Charcot joint is an atrophic disturbance, not inflammatory. I do not think it is a Charcot joint. Whether it can be a syphilitic dactylitis of the great toe, I am incapable of saying. The description of the toe suggests an inflammatory process more than anything else. Sometimes neoplastic lesions on the outside look a good deal like inflammatory lesions, in that they produce pain and a picture of inflammation. Since there is a toe fracture which may be neoplastic, I am wondering whether there may have been enough trauma to set up an irritation or a secondary inflammatory process. That is a possibility.

Amyloid disease was thought of on account of the liver and spleen, but it was ruled out. I do not see how it could explain the bone lesions.

One always thinks of multiple myeloma in the presence of multiple bone lesions. However, none of the laboratory signs are present; there is no anemia, no elevation of plasma protein and no evidence of Bence-Jones protein in the urine. Multiple myeloma can exist without that evidence, however. I suppose that certain types of myeloma might involve the liver. I cannot say that they could not involve the spleen. I think it is unlikely that multiple myeloma is the diagnosis, but it might be.

Lymphoblastoma would cause a big liver and spleen. I cannot square this bone picture with any form of lymphoblastoma that I have ever heard of; but perhaps I am just lacking in experience.

I put, on this list, endocarditis, not because it is suggested very much, but simply because I have recently seen a case with lesions in the big toe of embolic origin that looked something like the description of this lesion here. I mention this in passing, I am not putting it on the list as one of the diagnoses that I am thinking of seriously.

In any bone or joint lesion, one thinks of pulmonary osteoarthropathy. I think of that because of the fluid in the chest and the appearance of the toe, but I do not see how that could have any bearing on the bone lesions, unless a cancer in the chest, which had metastasized, was giving rise to an unusual type of osteoarthropathy. I should say that this suggestion is not worthy of further talk.

Hyperparathyroidism is not suggested by the chemistry, and the location of the lesion in the lower extremities is not suggestive. Dr. Albright has recently collected a series of cases, which are characterized by pigmentation and multiple bone lesions, which may appear in the lower extremities only, and by hormone manifestations, such as sexual precocity. There is nothing said about precocity or the reverse here; and all I can say is that this could be Albright's disease, and maybe it is. But one does not know what Albright's disease is, so it would be merely classifying it to give it that name.

Dr. Holmes suggests rare tumors. I mentioned lymphoblastoma but think it unlikely. I do not think that a primary bone tumor is strongly suggested. I do not believe it is primary bone tumor. I had on the list cancer, primary wherever you wish, with metastases all over the body; but this diagnosis is not convincing. Speaking of rare tumors, I do not know

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but that this lesion could be some form of xanthoma. In most cases of xanthoma, however, the serum cholesterol is elevated to a very high level. It is not here. The deposits in the eye might suggest xanthoma, but the description does not sound quite like it. They should be yellow rather than brown.

I shall just have to make a guess as to the diagnosis, and I will say that syphilis is the most likely explanation of the whole picture. I do not think tuberculosis explains the picture. I would put as second some form of malignant disease, carcinomatous or otherwise, with multiple metastases.

DR. MALLORY: Dr. Holmes, do you care to go farther?

DR. HOLMES: I cannot make a diagnosis.

A PHYSICIAN: Could it be Gaucher's disease?

DR. MEANS: She has no anemia. I thought of it but did not put it down because there was no anemia.

DR. MALLORY: What do you think about it, Dr. Thannhauser?

DR. SIEGFRIED J. THANNHAUSER: There is one thing that is against Gaucher's disease, and that is the appearance of the bone lesion. If it were Gaucher's disease of this degree, you would have a bone shaped like an Erlenmeyer flask. That is the only reliable x-ray symptom, and that is not present in this case.

DR. JOHN H. TALBOTT: I think there is something to be said about the chemistry. The cholesterol is definitely low. The serum protein determinations in the routine laboratory have recently all proved low when checked by more careful methods. Therefore, the figure of 7.7 must mean a definitely elevated serum protein.

DR. THANNHAUSER: The high phosphatase is highly suggestive of bone metastasis. One finds a high phosphatase in Paget's disease and in bone metastases.

CLINICAL DIAGNOSES

Osteomyelitis of tibia?
Gaucher's disease?

DR. J. H. MEANS'S DIAGNOSES

First choice—Syphilis.
Second choice—Metastatic malignant disease.

ANATOMIC DIAGNOSIS

Gumma.

PATHOLOGICAL DISCUSSION

DR. MALLORY: The biopsy was taken from the upper end of the tibia and showed marked necrosis affecting both marrow and bone trabeculae, but particularly the marrow, with all the histologic characteristics of gumma. Following that, the patient was started on antisyphilitic treatment. The liver and spleen promptly disappeared, and all the lesions have shown signs of healing. The patient was seen in Dr. Chapman's office yesterday and is perfectly well except for one ingrown toenail.

I believe the combination of the biopsy findings and the results of the therapeutic test leave no doubt that syphilis was responsible for all her important symptoms.

CASE 23152

PRESENTATION OF CASE

A 39 year old American Negress was admitted complaining of shortness of breath.

The patient had been known to have a high blood pressure for 6 years but had never had any significant symptoms. A year before entry, her gall bladder and appendix were removed because of recurrent attacks of pain in the right upper quadrant. At that time she weighed 230 pounds and was advised to reduce. She remained well subsequently until 3 months prior to admission, when she first noted ready fatigue and dyspnea on moderate exertion. At about this time she developed a nonproductive cough, which persisted. On one occasion she coughed up a small amount of blood-tinged, frothy sputum. The dyspnea increased progressively, and 3 weeks before coming to the hospital she first noted orthopnea associated with slight, nonradiating, precordial pain, the character of which was not recorded. The orthopnea was rapidly progressive, and the patient was confined to bed. There was no edema, polyuria or other symptoms of significance. The patient had had seven pregnancies, six of which had terminated as stillbirths.

Physical examination showed a well-developed, obese, orthopneic woman breathing in a paroxysmal fashion which was said not to be Cheyne-Stokes in character. The pupils were equal and reacted normally to light. The fundal arterioles were narrow, the venules dilated, and there was arteriovenous nicking. The trachea was not displaced and did not exhibit rhythmic tug. The anteroposterior diameter of the chest was increased, and expansion was uniformly limited. The breasts were large and pendulous, and there were accessory nipples in both midmammary lines. The heart was enlarged 11.5 centimeters to the left and 4 centimeters to the right of the midsternal line, and the supracardiac dulness measured 6 centimeters. The rhythm was regular, and the sounds were of good quality. The aortic second sound was snapping and reverberating in character. The apical first sound was reduplicated. No murmurs were heard. The blood pressure was 180/130, and there was pulsus alternans. A few moist rales were heard at both lung bases, and the breath sounds possessed exaggerated in-

tensity. The abdomen was distended, and palpation was unsatisfactory. There was no peripheral edema.

The temperature was 100°F., the pulse 100. The respirations were 25.

Examination of the urine showed a specific gravity of 1.020 and a trace of albumin. The sediment contained 5 to 8 red blood cells and 3 to 4 white blood cells per field, with occasional granular and hyaline casts. The blood showed a red cell count of 3,600,000, with a hemoglobin of 65 per cent. The white cell count was 17,650, 78 per cent polymorphonuclears. The stools were negative. The nonprotein nitrogen of the blood serum was 44 milligrams per cent, the serum chlorides were equivalent to 90 cubic centimeters N/10 sodium chloride, and the carbon dioxide combining power was 59.7 volumes per cent. The serum protein was 6.8 grams per cent, and the cholesterol 125 milligrams per cent. A blood Hinton test was positive, and a blood Wassermann test negative. The sedimentation rate was 0.73 millimeters per minute. An electrocardiogram showed a moderately marked left axis deviation. T_1 and T_2 were low, and T_3 was diphasic. S_2 was prominent. Q_4 was present, ST_4 prolonged and T_4 slightly upright.

X-ray examination of the chest showed a markedly dilated heart, the left ventricle being particularly enlarged. The aorta was markedly tortuous and appeared to be widened. The costophrenic angles were clear, and the lung markings were slightly prominent. A gastrointestinal series was incomplete but showed no evidence of disease in either the stomach or duodenum. The stomach was slightly displaced to the left.

The patient was treated palliatively and improved symptomatically, although the gallop rhythm and pulsus alternans persisted. During the third hospital week she began to pass large amounts of blood by rectum—on several occasions as much as a liter of fluid and clotted blood was expelled. Rectal examination showed only internal hemorrhoids. Vaginal examination was unsatisfactory. Her general condition precluded any intensive study. The paroxysms of dyspnea occurred at intervals, and were frequently Cheyne-Stokes in character. The blood pressure rose to 250/180. No further note of melena was made. During the hospital stay her temperature fluctuated between 98° and 101°F., and her pulse remained elevated above 100. The nonprotein nitrogen rose to 90 milligrams per cent, the patient gradually lapsed into coma and died on the fiftieth hospital day.

Differential Diagnosis

Dr. Howard B. Sprague: The information that we have about this patient indicates that she obviously had hypertensive heart disease. She had had a high blood pressure for 6 years, and definite hypertension was recorded at the hospital. She had a large left ventricle as shown on physical examination, by x-ray and by electrocardiogram. She had gallop rhythm and pulsus alternans, paroxysmal dyspnea and, at times, Cheyne-Stokes respiration—evidence throughout of left ventricular failure in that there was no peripheral edema. The age of the patient would be satisfactory for a diagnosis of hypertensive heart disease, but there are other features about the story that are rather more difficult to explain, for instance, those concerning the question of syphilis, her anemia and the bleeding from the rectum. I think that the rectal bleeding may well explain the anemia. Those two symptoms are probably combined, but we have an earlier note that the stools were negative for blood.

As to the matter of syphilis in this case, I have considerable respect for the accuracy of the blood Hinton test when it is combined with the fact that the patient had seven pregnancies, six of which terminated in stillbirths. I should think that we were justified in making a diagnosis of syphilis, but the questions are, just what part of her body did this affect and, especially, do we have any leads as to the presence of cardiovascular syphilis? They were apparently trying hard to find an aneurysm in this case, but she had no displacement of the trachea and no tracheal tug. The aortic second sound was snapping and reverberating in character, which can be explained by hypertension without aneurysm or syphilitic aortitis. The x-ray department noted that the aorta was very tortuous and seemed to be widened. If we cannot find evidence of enlargement of the aorta on physical examination, and if there is no note of aortic regurgitation, we are forced to rely on the x-ray department's point of view as to the involvement of the aorta by syphilis. This case is further complicated by the enlargement of the aorta that occurs in hypertension. I see nothing but to ask the x-ray department if the patient had syphilitic aortitis. I think we can do no more than fail to be surprised if the aorta showed syphilis.

As to the story of the passing of a large amount of blood by rectum, such an occurrence might be a terminal episode and could be explained by some arterial bleeding into the gastrointestinal tract, but it is a little difficult for me to see how active arterial bleeding could have occurred and could have then stopped, while the patient lived for 2 or 3 weeks afterward. The stomach and duodenum have apparently been ruled out by x-ray examination as a source of bleeding. While one might think that in a hypertensive patient it would be possible to have bleeding in various parts of the body from ruptured vessels, I must admit that

I have not seen it in the intestinal tract, in my own experience, except in relation to mesenteric artery occlusion. There is no story of abdominal pain, and I do not believe that the patient would be able to recover from mesenteric occlusion that would cause profound and repeated bleeding and live on for some weeks afterward. That would seem to make the presence of an abdominal aneurysm or of some arterial vascular episode in the gastrointestinal tract unlikely, so that venous bleeding must be the cause of the large amount of blood passed by rectum. The only lead we have is that the patient had internal hemorrhoids. I think we may have to fall back on that as the explanation of the bleeding. The nonprotein nitrogen increased toward the end, and the patient went into coma. I should consider that she went into a uremic coma as a final episode, with a failing, hypertensive heart. I think that the underlying pathology here is that of hypertension with left ventricular failure, but that syphilis is probably present in the aorta, although I have no indication from the information here as to whether there is involvement of the cardiovascular system below the diaphragm.

DR. WYMAN RICHARDSON: I would like to ask Dr. Sprague if the blood pressure of 250/180 before death is not unusual in hypertensive heart disease and whether that might not suggest that this patient's symptoms were largely renal, possibly due to uremic ulcer or a terminal colitis?

DR. SPRAGUE: You mean the fact that the diastolic pressure was so high? I think that she had uremia at the end.

DR. RICHARDSON: Do you think that cardiac hypertension goes as high as this before death?

DR. SPRAGUE: I have seen it. It is not usual, but it can occur with a steadily increasing diastolic pressure.

DR. AUBREY O. HAMPTON: I am curious about the displacement of the stomach in regard to the question of a diagnosis of syphilis of the aorta somewhere. We could not make a diagnosis of aneurysm of the aorta in the chest from our examination.

DR. TRACY B. MALLORY: Dr. Bock, you saw this patient. Will you give us your impression?

DR. ARLIE V. BOCK: I did not see her until the end of her stay, when she was in a more or less semimoribund state. I simply regarded the condition as the end stage of hypertensive heart disease and supposed, without much doubt, that she had an aortitis. I could not explain the bleeding any more adequately than Dr. Sprague, because there was nothing to suggest a lesion in the gastrointestinal tract. Whether she had a polyp of the colon, with hemorrhage, I did not know. I did not believe that there was very much evidence to suggest a primary nephritis. We see cases of essential hypertension accompanied by a very high diastolic pressure, with very little that the pathologist can demonstrate in the kidney.

DR. SPRAGUE: I would like to ask any surgeon that may be present whether a polyp could cause this amount of bleeding. That and malignancy entered my mind as possible causes here, but the impression that I had was that bleeding in such cases was a matter of relatively small amounts from the ulcerating surfaces. It seemed very unlikely that either a malignant process or a polyp might ulcerate, cause massive hemorrhage and then stop bleeding.

DR. RALPH ADAMS: I was recently shown a patient at the Bellevue Hospital in New York who was practically exsanguinated from bleeding hemorrhoids.

CLINICAL DIAGNOSES

Congestive failure.
Chronic glomerulonephritis.
Uremia?

DR. HOWARD B. SPRAGUE'S DIAGNOSES

Hypertensive heart disease.
Hypertensive heart disease with left ventricular failure.
Chronic nephritis and uremia.
Bleeding hemorrhoids.

ANATOMIC DIAGNOSES

Coronary occlusion.
Mural thrombi, left ventricle and right auricle.
Myocardial infarction.
Thrombosis of the left popliteal vein.
Pulmonary emboli.
Pulmonary infarction.
Cardiac hypertrophy and dilatation.
Nephritis, chronic vascular.
Bronchopneumonia.

PATHOLOGICAL DISCUSSION

DR. MALLORY: As I read over the story, I was more impressed with the nephritic element than either Dr. Sprague or Dr. Bock. I was inclined to connect the anemia with it. Anemia is a fairly good sign of failing kidney function in hypertensive cases. The nonprotein nitrogen was not high, but it does not have to be high in vascular nephritis. You sometimes begin to get uremic symptoms at a level of 50, whereas with chronic glomerulonephritis it is more apt to be 100 or considerably higher before clinical uremia is evident.

The patient showed what was predicted, and a great deal more besides, for which there was no evidence in the clinical history. She had a markedly enlarged heart, weighing over 500 grams. The aorta was dilated and presented

at autopsy a somewhat wrinkled surface, which the house officers wanted to call syphilis, but I thought the evidence was not adequate. Longitudinal wrinkling is found in many cases of hypertension. Microscopically there were a few collections of lymphocytes in the adventitia but no focal destruction in the media. It is possible that she had a minimal amount of syphilis of the aorta, but we certainly could not prove it histologically.

The heart, besides much hypertrophy, showed an acute coronary occlusion, a large thrombus in the left ventricle and another thrombus in the right auricle, and there were multiple pulmonary emboli. The source of the pulmonary emboli might have been either this thrombus in the right auricle or a thrombus of the left popliteal vein, which was involved from the knee up to the thigh. The kidneys were definitely contracted, weighing 200 grams. They showed an advanced grade of vascular nephritis, and I think that there is no question but that renal insufficiency was an important element in the patient's death.

DR. BOCK: What caused her bleeding?

DR. MALLORY: It apparently came from the hemorrhoids.

DR. BOCK: What is the status between the Hinton and Wassermann tests?

DR. MALLORY: The Hinton test is, by and large, a far more sensitive test than the Wassermann. Without much question, it gives a few more false positives than the Wassermann because of this extreme sensitivity.

DR. SPRAGUE: Do you think that this patient had syphilis?

DR. MALLORY: I do not think the autopsy helps us but I think it is very probable.

DR. SPRAGUE: I was thinking more of the repeated stillbirths.

DR. MALLORY: Those could be explained by hypertension and vascular nephritis.

DR. SPRAGUE: Could they be explained six times without more cardiovascular failure?

DR. MALLORY: I think syphilis is a better explanation.

DR. BOCK: Did you ever hear of hemorrhoids producing hemorrhage of this degree?

DR. ALFRED KRANES: I have seen several cases of hypertensive heart disease with failure in which very large amounts of blood were passed by rectum and nothing found postmortem. I had one case on the East Medical Service and one that I saw in the country.

DR. BOCK: But not from hemorrhoids.

DR. KRANES: We do not know; the intestinal tract was negative.

DR. MALLORY: Frequently there is colitis to explain it, but there was none here.

A PHYSICIAN: Does colitis cause bleeding in large amounts?

DR. MALLORY: Not usually, but it produces small amounts of blood and certainly causes positive guaiac tests. The complete cessation of the bleeding in this case is an argument in favor of hemorrhoids. Almost anything else you can think of would have continued.

A PHYSICIAN: Was the coronary occlusion recent?

DR. MALLORY: Yes, quite fresh.

The New England
Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the

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Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 8 Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 8 Fenway, Boston, Mass.

DECLINE IN THE NATURAL INCREASE OF POPULATION

As the result of two circumstances, a record low birth rate and a death rate higher than any that has been experienced within the last five years, the crude rate of natural increase of the population of the United States, according to the Metropolitan Life Insurance Company, touched the lowest point yet attained, about 5 per thousand, in 1936. The crude rate of natural increase represents the excess of the birth rate over the death rate; the figure for 1936 is based on data furnished the Company by health and registration officials of thirty-four states and the District of Columbia, covering the first nine months of the year.

According to these statistics, during the period from January to September of 1936 the birth rate within the areas covered was 16.5 per thousand and the death rate 11.5 per thousand. The corresponding figures for 1935 were a birth rate of 16.8 and a death rate of 10.9, leaving a margin of 5.9 for the rate of natural increase.

The country as a whole, however, although not quite up to the standards of preceding years, did not experience unfavorable health conditions during 1936, despite the intense cold of the winter and the unprecedented drought and heat of the summer. The mortality rate was only slightly increased over the previous years, but this, taken in conjunction with a slightly lowered birth rate, gives the unusually low, crude rate of natural increase.

The fact that seems to cause apprehension is that "we are still benefiting from the effects of relatively high birth rates in the past, which have endowed our population with an age distribution specially ample at the reproductive ages". In the course of time this condition will be replaced by an age distribution less rich in constituents of this age group. Eventually the margin of the birth rate over the death rate will not only further diminish, but may even cease to exist.

Maintenance of the man power of any nation has always constituted one of its chief concerns. Populations are encouraged to increase despite the inability of the land to support them or of industry to absorb them. New lands are sought by overcrowded countries into which to pour their teeming millions and, with hundreds of thousands in the bread lines, one of a nation's greatest anxieties is to produce more hundreds of thousands to augment and replace them. This attitude is one of the mysteries of a civilization that might seem better employed in finding greater happiness for a smaller population than in seeking to increase the numbers habituated to an existence of relative misery.

THE BRITISH MASTERS OF MEDICINE IN THE NINETEENTH CENTURY

Two recently published books of biography* attempt to evaluate the British physicians of the nineteenth century. Sir William Hale-White limits his book to this period, while Sir

*Hale-White, William: Great Doctors of the Nineteenth Century. London: Edward Arnold & Co., 1935.
Power, D'Arcy: British Masters of Medicine. Baltimore: William Wood & Co., 1936.

D'Arcy Power includes Harvey, Sydenham, Floyer, Chesenden, Pott, John Hunter and Lettsom before 1800 and Robert Jones, Osler, Mackenzie and Starling in the twentieth century. Omitting these, the lists of the two compilers can be compared.

Both agree on eight major figures: Jenner, Bright, Addison, Stokes, Simpson, Paget, Lister and Manson. Power would add Robert Willan, William Fergusson, R. B. Todd, William Turner and H. O. Thomas; Hale-White lists Astley Cooper, Charles Bell, Marshall Hall, William Bowman, John Simon, William W. Gull, Samuel Wilks, Hughlings Jackson and Ronald Ross. With the major eight, no one could disagree. Even the addition of Manson, less known than the others, who initiated a new era in medicine when he associated the spread of disease in man with the agency of winged insects, finds warm acceptance in the hearts of medical historians. It is the lesser figures that concern us.

Robert Willan, the dermatologist, belongs to the eighteenth century, for his work was done at the Public Dispensary in London from 1783 to 1803. His famous book, "The Description and Treatment of Cutaneous Diseases", was issued in parts, 1798 to 1808, with a final part in 1814. William Fergusson can only be considered as a minor figure, who helped to develop operative surgery before the days of Lister. Fergusson's reputation is that of a brilliant operator and a great "conservative" surgeon; the latter principle was later embodied in the work of Halsted at Johns Hopkins. R. B. Todd, the physiologically minded clinician of King's College, trained by Graves, is best remembered for his remarkable insight into nervous diseases. William Turner, the anatomist and teacher, found fame largely by his influence on others. The renown of H. O. Thomas, the founder of orthopedic surgery, grows with the years. His recognition of physiologic principles of tissue life and repair and treatment by physiologic rest, gives him a place closer to the eight great masters, noted by both Power and Hale-White, than Fergusson, Todd or Turner.

What of Cooper, Bell, Hall, Bowman, Simon, Gull, Wilks, Jackson and Ross, mentioned by Hale-White? Cooper, the popular surgeon, who loved anatomy, cannot be classed among men of genius or even of truly scientific attainments. Charles Bell, who discovered the distinct functions of the nerves, takes his place beside Harvey and it seems surprising that Power omitted him from the "British Masters of Medicine." Marshall Hall, too, with his discovery of reflex action, should be given a high place in the series of biographies, although perhaps not in the same class with Bell. William Bowman, ophthalmologist and histologist, and John Simon, the sanitarian, as well as W. W. Gull, "the physician in fashion", with many of the clinical characteristics later noted in Osler, were men of importance. Samuel Wilks, the beloved physician of Guy's Hospital, who so generously gave Hodgin credit for the original description of enlargement of the lymph nodes, Hughlings Jackson, the neurologist, and Ronald Ross, discoverer of the mosquito transmission of malaria to man, are too close to our times to be definitely evaluated. Hughlings Jackson is perhaps the greatest of the three. None, however, compares in stature with Jenner or Lister, although each is nearer Bright, Addison, Stokes or Paget. Would that all medical students and physicians read and inwardly digested the lives of these great men!

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

LADD, WILLIAM E. M.D. Harvard Medical School, 1906. F.A.C.S. Chief of surgical service, The Children's Hospital. Clinical professor of surgery, Harvard Medical School. Address: 300 Longwood Avenue, Boston.

LANMAN, THOMAS H. M.D. Harvard Medical School, 1916. F.A.C.S. Visiting surgeon, The Children's Hospital. Associate in surgery, Harvard Medical School. Address: 300 Longwood Avenue, Boston. Their subject is "Exstrophy of the Bladder." Page 637.

ROBERTS, SUMNER M. M.D. Harvard Medical School, 1925. F.A.C.S. Assistant in orthopedic surgery, Harvard Medical School. Assistant visiting surgeon, orthopedic service, Massachusetts General Hospital. Orthopedic consultant, Massachusetts Eye and Ear Infirmary and Robert Breck Brigham Hospital. Address: 372 Marlborough Street, Boston.

JOPLIN, ROBERT J. M.D. Harvard Medical School, 1928. Assistant in orthopedic surgery, Harvard Medical School. Assistant orthopedic surgeon, Robert Breck Brigham Hospital. Junior visiting orthopedic surgeon, Children's Hospital. Address: 372 Marlborough Street, Bos-

ton. Their subject is "Arthroplasty of the Elbow." Page 646.

D'ERRICO, EMILIO. M.D. Tufts College Medical School, 1923. F.A.C.S. Junior surgeon, Cambridge City Hospital. Assistant visiting surgeon for gynecology and obstetrics, Boston City Hospital. Associate obstetrician, Lawrence Memorial Hospital, Medford, Mass. Instructor in obstetrics, Tufts College Medical School and Boston University School of Medicine. Address: 27 Bay State Road, Boston. His subject is "Interstitial Pregnancy Ruptured Through a Tubal Stump." Page 654.

HARPIN, RAYMOND A. M.D. Boston University School of Medicine, 1931. Urologist, Union Hospital, Lynn. Second assistant visiting surgeon, Massachusetts Memorial Hospitals. Assistant in genito-urinary surgery, Boston University School of Medicine. Address: 536 Commonwealth Avenue, Boston. His subject is "Double Kidney Pelvis, and Nonfusion of the Laminae of the First and Fifth Lumbar Vertebrae in Each of Twins." Page 658.

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CASE HISTORIES

No. 15. TUBAL ABORTION

Mrs. N. W., a white woman, married 14 months, aged 24, was seen in the outpatient department of the Free Hospital for Women, on November 6, 1936. She said that she had missed the regular menstruation that was due on September 21. On October 1, she began to have a brownish vaginal discharge, which had continued off and on. Beginning October 25, she flowed for 6 days and again on November 5. She had had pain in her back for several days.

There was no family history of malignant disease, tuberculosis or diabetes. The patient had had no serious illness or operation. She had never been pregnant. Menstruation began at 14 and was of the normal 28-day cycle up to the present illness. Her bowels moved every day without laxatives. She had no frequency of, or pain during, micturition.

On physical examination, she was well developed and nourished. Her temperature was 99.8°F. The head, neck, throat and teeth were negative. The examination of the lungs showed normal resonance and breath sounds and no rales. The heart was not enlarged, it was in normal position, and there were no murmurs. The rhythm was regular at 88, and the blood pressure was 120 systolic, 90 diastolic. Her breasts were negative. There was tenderness across the lower abdomen with some spasm. Vaginal examination revealed a mass filling the pelvis and obscuring the uterus, but without a definite capsule. The cervix was small and soft. She was admitted to the hospital immediately.

The sedimentation rate was 30 minutes. The white blood cell count was 7,200, and the red count 2,760,000. The bleeding time was 1 minute, and the clotting time 8 minutes. The urine was clear and acid, with a specific gravity of 1.012. It was negative for albumin and sugar, and the sediment showed nothing abnormal.

The missed period in September, the brownish discharge, the irregular flow in November and the mass in the pelvis suggested an ectopic pregnancy. The apparently normal flow in October was disconcerting, but it might have been due to bleeding from the uterine end of the tube when the pregnancy ended. The lack of any acute attack of pain was against ectopic pregnancy. The low red count suggested hemorrhage. It was thought most likely that this was a case of ectopic pregnancy, and that an operation was indicated. She was given 500 cubic centimeters of citrated blood.

The operation was performed on November 7. It revealed a pelvis full of partially organized blood clot and an enlargement of the left tube (8 by 7 centimeters) from contained blood clot. The blood clot was removed from the pelvis with some difficulty, because it had become adherent to the uterus, pelvic wall, ovaries and intestine. The ovaries and right tube were normal. The left tube was removed. The round ligaments were shortened as a result of edema, and the uterus was in good position, so a suspension was not done. The appendix was normal and was not removed.

Her convalescence was complicated by partial atelectasis of the right lung and moderate distention for 4 days. She was discharged 14 days after operation.

Pathological diagnosis: "Chronic salpingitis; blood clot; degenerating chorionic villi; tubal pregnancy."

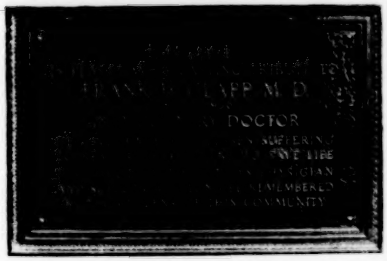
The unusual aspect of this case was the lack of attacks of acute pain and the lack of pain in general. The vaginal examination showing a large mass with no definite outline, which was not very tender, together with the low red count, suggested blood in the pelvis. The state of organization of the blood implied that the tubal abortion occurred when she had the 6 day flow starting October 25.

*A series of selected case histories by members of the Section will be published weekly.
Comments and questions by subscribers are solicited and will be discussed by members of the Section.

MISCELLANY

MEMORIAL TO DR. FRANK CLAPP

A memorial tablet in honor of the late Dr. Frank Horace Clapp, which has been placed in Nelson Memorial Hall, North Grafton, was unveiled Saturday, March 20. Funds for the purchase of the tablet were raised by popular subscription among the townspeople.



Dr. Harlan L. Paine, superintendent of the Grafton State Hospital, was chairman of the committee in charge of arrangements, and the principal speaker was Dr. Donald S. Adams, of Worcester.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR FEBRUARY, 1937

Disease	February, 1937	February, 1936	5 Year Average*
Anterior Poliomyelitis	1	2	2
Chicken Pox	1438	1220	1120
Diphtheria	21	30	82
Dog Bite	574	503	396
German Measles	77	424	500
Gonorrhea	429	396	425
Lobar Pneumonia	964	799	556
Measles	3503	2477	3151
Meningococcus Meningitis	15	23	8
Mumps	736	2213	975
Scarlet Fever	1002	1095	1271
Syphilis	509	426	361
Tuberculosis, Pulmonary	275	202	240
Tuberculosis, Other Forms	23	25	32
Typhoid Fever	3	9	7
Undulant Fever	1	4	1
Whooping Cough	1832	310	797

*Based on figures for preceding 5 years.

RARE DISEASES

Anterior poliomyelitis was reported from Norwood, 1.

Diphtheria was reported from Boston, 3; Brockton, 1; Cambridge, 1; Dedham, 2; Everett, 1; Fall River, 2; Fitchburg, 1; Gardner, 1; Medfield, 1; Palmer, 1; Revere, 1; Salem, 5; Taunton, 1; total, 21.

Dysentery, bacillary, was reported from Avon, 1; Boston, 1; Somerville, 1; Waltham, 1; total, 4.

Encephalitis lethargica was reported from Holyoke, 1; Lawrence, 1; Lynn, 1; Salem, 1; Swampscott, 1; total, 5.

Malaria was reported from Chelsea, 1.

Meningococcus meningitis was reported from Barre, 1; Boston, 4; Canton, 1; Chicopee, 1; Everett, 1; Medford, 1; Somerville, 1; Springfield, 1; Tewksbury State Infirmary, 1; Waltham, 1; Winchendon, 1; Woburn, 1; total, 15.

Pellagra was reported from Cheshire, 1; Revere, 1; total, 2.

Septic sore throat was reported from Amesbury, 1; Andover, 26; Belmont, 1; Boston, 7; Brookline, 1; Cambridge, 3; Chelsea, 1; Dartmouth, 1; Marblehead, 1; Milton, 1; South Hadley, 1; total, 44.

Trachoma was reported from Framingham, 1; Malden, 1; Springfield, 1; Watertown, 1; total, 4.

Trichinosis was reported from Boston, 1; Cambridge, 1; total, 2.

Typhoid fever was reported from Chelsea, 1; Medford, 1; West Boylston, 1; total, 3.

Paratyphoid fever was reported from Chelsea, 1; Saugus, 1; total, 2.

Undulant fever was reported from Pittsfield, 1.

Diphtheria had the lowest reported incidence for any February and for any year to date.

Tuberculosis (other forms) had the lowest reported incidence for any month ever recorded.

Typhoid fever had the lowest February incidence ever recorded, except for 1935.

Whooping cough and chicken pox had the highest February incidences ever recorded.

The reported incidences of lobar pneumonia and meningococcus meningitis continue above the five-year average, although less than in 1936 for the same period to date.

The reported monthly incidences of measles and pulmonary tuberculosis were above the five-year average.

The reported monthly incidences of German measles, mumps and scarlet fever were below the five-year average.

The February incidences of anterior poliomyelitis and undulant fever were not remarkable.

There was a marked increase in animal rabies. The foci of animal rabies are most noticeable in the North Metropolitan area—Methuen, Dover and Templeton.

CORRESPONDENCE

LECTURES ON OBSTETRICS AND PEDIATRICS

The Commonwealth of Massachusetts
Department of Public Health
April 1, 1937.

Editor, *New England Journal of Medicine,*

The Department of Public Health, in cooperation with the Massachusettts Medical Society, has arranged for a series of five lectures on obstetrics and five lectures on pediatrics in Springfield, Fitchburg, Hyannis, Greenfield and Taunton. The arrangements in each place have been made through the officers of the local medical society.

All physicians are welcome to attend. No fees will be charged. The expense of giving the courses will be paid out of federal funds, through the Social Security Act, which have been allotted to the State Department of Public Health for the purpose of pro-

viding physicians with opportunities for postgraduate instruction.

Following is a schedule of the postgraduate courses in obstetrics and pediatrics, giving the time and place of meeting in each of the five centers, together with the subject of the lecture and the name of the lecturer:

SPRINGFIELD	*Academy of Medicine*	4:00- 5:15 p. m.
	Thursdays:	5:15- 6:30 p. m.
	April 15; 22; 29	
	May 6; 13	
FITCHBURG	*Burbank Hospital*	4:30- 5:30 p. m.
	Fridays:	5:30- 6:30 p. m.
	April 16; 23; 30	
	May 7; 14	
HYANNIS	*Cape Cod Hospital*	4:00- 5:15 p. m.
	Sundays:	5:15- 6:30 p. m.
	April 18; 25	
	May 2; 9; 16	
GREENFIELD	*Franklin County Hospital*	8:00- 9:30 p. m.
		9:30-11:00 p. m.
	Wednesdays:	
	April 21; 28	
	May 5; 12; 19	
TAUNTON	*Hotel Taunton*	4:30- 6:30 p. m.
	Thursdays:	Buffet Supper—75c
	April 22; 29	7:00- 8:30 p. m.
	May 6; 13; 20	

OBSTETRICS

Subjects	Lecturers*
The Obstetric Examination	Delos J. Bristol, M.D. Robert L. DeNormandie, M.D.
Delivery and the Puerperium	Marion F. Eades, M.D. Roy J. Heffernan, M.D.
Bleeding in the Third Trimester	James J. Jenney, M.D. Foster S. Kellogg, M.D.
The Toxemias	Herbert B. Nelson, M.D. Joseph W. O'Connor, M.D.
Sepsis	Louis E. Phaneuf, M.D. John Rock, M.D. Judson Smith, M.D. Raymond S. Titus, M.D.

PEDIATRICS

Nutrition Problems of Infants—Prevention and Treatment	Warren R. Sisson, M.D. Richard S. Eustis, M.D.
Treatment of Common Skin Disorders in Infants and Children	Lewis W. Hill, M.D. Edward S. O'Keefe, M.D.
Contagious Diseases with Special Reference to Prevention and Treatment	Edwin H. Place, M.D. Conrad Wesselhoeft, M.D.
Abdominal Conditions in Childhood	Richard M. Smith, M.D. Thomas H. Lanman, M.D. Joseph Garland, M.D. William E. Ladd, M.D.
The Care of the Newborn and Premature Infant	Stewart H. Clifford, M.D. Robert N. Ganz, M.D.

*One of those listed.

The lecture on obstetrics will be given first and will be followed by the lecture on pediatrics.

Physicians living within a radius of approximately twenty-five miles of the place in which the lectures are to be given will receive notices of the meetings.

If these courses are received with favor by the profession, as shown by attendance and comments, it is hoped that further funds will be made available so that lectures on these and other subjects may be given later in the year in other sections of the Commonwealth.

HENRY D. CHADWICK, M.D.,
Commissioner of Public Health.

State House,
Boston.

OFFICIAL ACTIONS OF THE BOARD OF REGISTRATION IN MEDICINE

State House, Boston

April 3, 1937.

Editor, *The New England Journal of Medicine,*

This is to inform you that at the meeting of the Board of Registration in Medicine held April 1, 1937, it was

Voted: To revoke the certificate of registration of Dr. William Martin Walsh, of 706 Huntington Avenue, Boston, because of gross professional misconduct in the case of a pregnant woman who died under ether in his office during intrauterine instrumentation.

Voted: To revoke the certificate of registration of Dr. Hans William Bencker, of 409 South Huntington Avenue, Jamaica Plain, because of gross professional misconduct in the matter of making the will of a patient in which he wrote himself in as residuary legatee.

Yours very truly,

STEPHEN RUSHMORE, M.D., *Secretary.*

RECENT DEATH

COWLES—WILLIAM NORMAN COWLES, M.D., of Cataumet, died suddenly at his home, March 28. He was in the seventy-fifth year of his life.

Since his retirement 20 years ago, Dr. Cowles had been a summer resident of Cataumet and for the past four years had lived there the year round. He practiced in Ayer before his retirement and was formerly head physician of Groton Academy. He was graduated from the Harvard Medical School in 1887 and was a member of the Massachusetts Medical Society, the American Medical Association and the Masonic Order.

He was a man of unusual mental faculties, which were retained up until the time of his sudden death. He was not only extremely interested in the problems of modern medicine, but also was well versed in present-day economic and political problems.

Those who worked with him knew him as an excellent friend and a wise counselor in all sorts of problems and difficulties.

His widow, Mrs. Jennie Cowles, and two daughters, Mrs. Martha Douglas, of Boston, and Miss Hope Cowles, of New York City, survive him.

OBITUARIES

RESOLUTION ON DEATH OF NATHANIEL NILES MORSE

The Boston Society of Anaesthetists mourns the loss of one of its charter members, Nathaniel Niles Morse, who departed this life February 24, 1937. Somewhat aloof, not easy to become friendly with, nevertheless, in this small group, Nat was respected by all, and his opinions and suggestions were gratefully received and carefully considered. Due to his failing health, he had not of late been able to attend the meetings, but through correspondence had kept in touch with the action and policies of the Society. The severe emphysema, from which he suffered, may have been in some way related to his work as an anesthetist, particularly with ether, but scientific evidence to support this is lacking. His passing is a distinct loss to the Society, and each member shares with the surviving widow and daughters the sense of his loss.

ELEANOR B. FERGUSON, *Secretary*,
Boston Society of Anaesthetists.

DR. GEORGE MOSSMAN

Dr. George Mossman died at his home, February 7, 1937, following an attack of influenza. Dr. Mossman was born in Westminster, Massachusetts, on November 16, 1889, the son of the late Dr. Alvaro E. and Mary Eacott Mossman.

He attended the public schools of Westminster and graduated from Cushing Academy, Ashburnham. After attending Harvard College for one year he entered the University of Vermont Medical School where he received his degree of M.D. in 1914. After serving internships in the Burbank Hospital in Fitchburg and Carney Hospital in Boston, he entered the practice of medicine in Westminster, removing to Gardner in 1921.

He entered the Medical Corps of the U. S. Army as a lieutenant during the World War and was discharged with the commission of captain, serving seven months in the orthopedic section. Following his discharge from the army, he resumed private practice.

Dr. Mossman was a senior surgeon and orthopedic surgeon on the staff of the Heywood Memorial Hospital in Gardner, consulting orthopedic surgeon at the Gardner State Hospital, associate medical examiner, physician for the Tuberculosis Dispensary of the Board of Health and school physician for the public schools of Westminster.

He was a Fellow of the American College of Surgeons, member of the Massachusetts Medical Society, of the Massachusetts Medico-Legal Society and of the American Medical Association. He was a member of the Masonic Order, Rotary Club, American Legion No. 129, Ovila Case Post Veterans of Foreign Wars and several other social organizations.

He is survived by his widow, Esther Curtis Mossman, one daughter, Mary, two sons, Curtis and David, and three sisters and two brothers.

To many of us there is a sense of keen personal loss.

Hence, be it resolved: That in the death of Dr. George Mossman, we, the staff of The Heywood Memorial Hospital, have lost a good friend, a conscientious worker and a man whom we all admired for his skill and personality and for his great interest in the welfare of the hospital.

That we desire to extend our deepest sympathy to his family and that this resolution be entered on our records and copies sent to his family, to the *New England Journal of Medicine* and The Worcester North District of the Massachusetts Medical Society.

A. F. LOWELL, M.D.,
R. K. EKWALL, M.D.,
C. S. LANCEY, M.D.

REPORTS OF MEETINGS

THE MASSACHUSETTS GENERAL HOSPITAL

CLINICAL MEETING OF THE STAFF

A clinical meeting of the staff of the Massachusetts General Hospital was held in the Moseley Memorial Building on January 21, 1937, Dr. Grantley W. Taylor presiding. Dr. Neil L. Crone presented the first case of the evening:

A 47 year old, male, Italian carpenter was well until 3 years ago, at which time he began to experience attacks of low back pain, which radiated to his testes, and noted the periodic appearance of hematuria. Two and a half years ago he was seen in the hospital, at which time his blood pressure was 160 systolic, 94 diastolic, the nonprotein nitrogen was 80 mg. per cent and examination of the urine revealed occasional red and white blood cells and a few hyaline and granular casts. There was costovertebral tenderness on the left side, and cystoscopy and pyelography showed a slight low-grade infection of the urinary tract. The urine was found to be negative for tubercle bacilli by guinea pig inoculation, and the patient was discharged with the diagnosis of pyelonephritis and Bright's disease. One and a half years before the present entry he developed an acute gonorrheal urethritis, following which his attacks of hematuria returned. These attacks occurred subsequent to exposure to cold or after hard work, and lasted for 2 or 3 days. Pyelography and examination of the urine for tubercle bacilli were again negative. The nonprotein nitrogen was 32 mg. per cent. He has continued to have recurrent attacks of hematuria until the present time. The following studies were performed in the hospital. His feet were placed in a

basinful of cold water, and the next day an attack of hematuria began, which lasted for 8 days. The majority of the blood in the urine was hemolyzed, and only a few red blood cells could be found at any one time. Spectroscopic examination of his blood revealed no abnormal findings. One arm was bound with a pressure cuff, and was immersed alternately in cold and in hot water. A sample of venous blood was taken from this arm, and a guaiac test on the serum was strongly positive. An attack of hematuria was precipitated by these procedures, and the patient became slightly jaundiced. A Hinton test was performed on four different occasions, and was found to be positive twice and negative twice. A diagnosis of paroxysmal hemoglobinuria was made, and the condition was believed to be secondary to a syphilitic infection. It was planned to treat him for the syphilis, with the belief that the attacks would disappear.

A second case was presented, in which a provisional diagnosis of pituitary basophilism or adrenal tumor had been made. The patient was a 47 year old, white female who had been well until 4 years ago, when she became upset emotionally by the death of her husband. Since that time she had lost 80 pounds of weight, and during the last 2 years her left arm had occasionally been swollen and tender. Her physician found sugar in her urine, made the diagnosis of diabetes and placed her on a low starch diet, which caused the glycosuria to disappear. During the previous year she experienced several attacks of nonradiating, substernal pain, which were not brought on by exertion. There has been amenorrhea for several months. Hair appeared on her face 9 months before her admission to the hospital. Physical and laboratory studies were strikingly negative. There was no elevation of the blood pressure, the Hinton test was negative, the visual fields were normal and x-ray studies showed a negative sella turcica, although the bones showed a slight degree of calcification of the type seen in senile osteoporosis. The blood showed a slight elevation in the number of red blood cells, and the color index was slightly above normal. The basal metabolic rate was within normal limits. Air injections around the adrenal glands failed to show any abnormality on the right. The left adrenal could not be visualized. It was explored surgically and found to be normal. Therapeutic x-ray treatment was administered to the pituitary gland without effect. In spite of all these measures, her symptoms of fatigability, weight loss and hypertrichiasis progressed. Exploration of the right adrenal gland was planned at the time of presentation. Dr. James H. Means remarked on the striking similarity between this patient and one who was seen recently at the Massachusetts General Hospital and who died with a malignant tumor of the adrenal cortex. The latter case (No. 23011) was reported in the Case Records of the Massachusetts General Hospital in this *Journal* in the issue of January 7.

The paper of the evening was presented by Dr. Joseph E. Moore, assistant visiting physician in charge of syphilology, Johns Hopkins Hospital, Baltimore. His subject was "Development in the Public Health Program for the Control of Syphilis." Dr. Moore remarked on the excellent conditions existing in Denmark and Sweden, where epidemiologic information concerning venereal disease has been accumulating for many years. In Denmark, statistics on the incidence of syphilis are available from 1793. In both Sweden and Denmark all venereal diseases must be reported, and this regulation is generally observed. In Denmark there is only one serologic laboratory, and, therefore, a record is certain to be obtained on every positive reaction. It is believed that the figures quoted by both Sweden and Denmark are reasonably accurate.

Following the World War there was a generalized increase in the incidence of syphilis in all European countries. This was particularly noticeable in the Scandinavian countries, where accurate records were obtainable. Since 1921 there has been a progressive decrease in the number of cases reported each year, as is shown by the following figures:

	Number of Cases 1919	Rate per 100,000	Number of Cases 1933	Rate per 100,000
Denmark	4307	119	648	18
Sweden	5976	97	34	7

Dr. Moore offered the following reasons as an explanation for the astoundingly low incidence in the year 1933: (1) the population of these countries is very homogeneous; (2) the population is predominantly rural; (3) the general level of education is high; (4) the citizens of these countries have a strong sense of law enforcement; (5) the level of medical education is very high, and all practitioners are graduates of excellent medical schools; (6) legislation has made the reporting and treatment of syphilis and gonorrhea obligatory. Violators of this law are subject to imprisonment and hard labor. Free treatment is provided for all at the expense of the state.

Conditions in the United States are very different from those just enumerated. The United States Public Health Service first established a venereal disease division some 15 years ago. Ten years ago Dr. T. Parran was made director of the division, and he found that there was no accurate information as to the incidence of syphilis in this country. Many states required physicians to report cases of syphilis, but the methods involved were such that open defiance was offered by the medical world, and it was impossible to gain adequate data. The Public Health Service conducted prevalence surveys in some fifty large communities, which were widely scattered in geographic distribution and in type of population. The total population so covered was approximately 29,000,000. The total rates for the entire population were calculated from the results gained from these surveys. These cal-

culations showed that during the year, 1935, 1,078,000 persons were under treatment for syphilis, an incidence of 835 cases per 100,000 population. The incidence was calculated to be approximately two and a half times greater among Negroes than among Whites. Of the total number of cases under treatment it is believed that approximately one half are fresh cases, while the rest are cases that have been under treatment previously. Thus, it is seen that there is over a hundred times more syphilis in our country than there is in Sweden.

There is some evidence that there is a decrease of syphilis in Great Britain, although the statistics are contradictory and indicate that late syphilis is being neglected.

From the viewpoint of public health the method of control of syphilis is fairly evident. It is recognized that it is impossible to control the infection by preventing contacts. It is impossible to vaccinate a patient against syphilis. There is no intermediate host that can be destroyed. It is impossible to enforce a quarantine upon those who are infected. The only hope of control lies in the adequate treatment of infected individualr. This involves the detection of infected persons and the thorough treatment of such individuals until they are no longer infectious and until there is no longer danger of their breakdown at a later date.

The enforcement of these measures is very difficult. There is a very high incidence of symptomless infections, in which no primary or secondary manifestations of the disease are apparent, and it is detected only by means of a serologic test or by late symptoms. It is believed that one of every five infected males escapes primary or secondary symptoms, while one of every three females similarly escapes. Many "quacks" prescribe false treatment, and drugstore clerks frequently dispense inadequate therapeutic agents. Many patients do have signs of early disease, but misinterpret them or go to a physician who disregards them.

It is believed that many cases may be missed because of the inability of physicians to recognize syphilis. There are two ways in which this fault may be remedied—to raise the level of medical education, and to enforce rigorously epidemiologic case finding.

In Baltimore there are some 4,550 fresh cases of syphilis each year, twice as many cases as there are of fresh tuberculous infections. It would be impossible for a bureau to trace the contacts of all these patients. Such work must be undertaken by the physicians themselves.

Another great problem is that of late syphilis. Although the danger of infection from such patients is relatively remote, they furnish a tremendous economic burden. At least 10 per cent of the patients in insane hospitals are syphilitics, and other hospitals for chronic disease have their share. One hundred and fifty thousand persons in the United States are blind because of the effects of late syphilis. These various types of patients could have been saved from physical and economic breakdown if they had received adequate treatment in the earlier stages of their disease when the only manifestation was positive serology. The detection of syphilis is cheap; it costs only eleven cents to perform an adequate serologic examination.

Keeping syphilitics, particularly those in the lower intellectual classes, under treatment for an adequate length of time is extremely difficult. At least 40 weeks of continuous therapy are necessary to prevent infectiousness. It is virtually impossible to compel persons to continue treatment. The only method must be the provision of efficient clinics, good doctors and adequate follow-up methods. The general public must be educated, although such education should be carefully handled and controlled, lest the people grow tired of too vigorous a publicity campaign and cease to be interested.

Dr. Nels Nelson commented on the development of the Massachusetts Department of Public Health's program for the control of syphilis, and stated that more than one million doses of medicine for the treatment of syphilis were distributed in this state during 1936. He stated that the private physician must cooperate fully with the health department in the efforts for control.

Dr. C. Guy Lane spoke of the work of the syphilitic clinic at the Massachusetts General Hospital. Five hundred new cases are found there each year. Approximately 350 of these patients have late syphilis and 50 have congenital, while 20 have primary and 60 have secondary manifestations. Twenty per cent of the patients are transferred to other clinics or to private physicians. Sixty per cent of the patients leave the clinic with less than fifteen treatments and are to be considered as potentially infectious and apt to develop late symptoms. The clinic serves a very definite and valuable role as a clearing house for many cases, and starts many patients on the proper route for adequate treatment.

AMERICAN ASSOCIATION OF OBSTETRICIANS, GYNECOLOGISTS AND ABDOMINAL SURGEONS

The American Association of Obstetricians, Gynecologists and Abdominal Surgeons held its mid-year clinical meeting in Boston on Saturday, March 27.

Clinics were held at the Massachusetts General, the Boston Lying-in and the Carney hospitals. The Fellows met at the University Club for luncheon and at the Algonquin Club for the banquet.

FAULKNER HOSPITAL CLINICAL MEETING

The regular clinical meeting of the Faulkner Hospital was held Thursday, March 4, at 5:00 p. m.

The first of the two cases presented for clinical pathological discussion was that of a woman, 50 years of age, who entered the hospital complaining of cough and weakness. Her past history and family history were irrelevant. For 2 or 3 weeks before entrance to the hospital, she had had chills, fever and cough. A few days before entry, she

thought she was well enough to return to work, but she had to give up and return home because of exacerbation of the cough and pain in the left side of the chest and shoulder. Upon entrance to the hospital, she had definite cyanosis and signs suggestive of fluid in the left chest. An x-ray examination showed the heart and trachea to be pushed over toward the right. There was no evidence by x-ray or physical examination of any disturbance in the right side of the chest. The leukocyte count was 45,000. A small amount of straw-colored, nonpurulent fluid, which contained a nonhemolytic streptococcus, was withdrawn from the left side of the chest.

During her stay of 2½ weeks in the hospital, the temperature, pulse and respirations were always elevated although they tended to approach normal until a day or two before her death, when they were again elevated. Three days after her entrance to the hospital, it was decided to draw off as much fluid as possible from the left pleural cavity but only 200 cc. were obtained. This fluid was of the same type and contained the same organism as that previously examined. The white count at this time had dropped to 25,000. On the day before her death, an x-ray picture showed an appreciable amount of infiltration throughout the right lung and a hydropneumothorax on the left side. The left lung was apparently adherent to the chest wall along the lateral aspect, so that when the patient was on her side, a fluid level could be seen, but above the fluid level and reaching out to the lateral chest wall, the lung markings were discernible. As much of the left lung as could be seen did not seem to be infiltrated. The patient died suddenly on the day following this x-ray examination.

The striking thing in the postmortem examination was the fact that the left lung was apparently not adherent to the lateral chest wall as the x-ray showed. This may have been due to a separation following the x-ray picture. There was a fistula leading from one of the smaller bronchi into the left pleural cavity, so that the hydropneumothorax may have been a result of this fistula rather than of air introduced at the time of tapping. The fluid in the pleural cavity had by this time become somewhat purulent. The right lung showed a diffuse bronchopneumonia, which accounted for the x-ray findings, and there was a bronchopneumonia in the left lung. The same type of organism was obtained from the lungs and from the left pleural cavity as had been previously obtained from the pleural fluid. No trace of the hyaline-like membrane that was reported in cases of the so-called influenza that swept the country in 1918-1919 was found on microscopic examination, nor did the x-ray findings suggest that epidemic disease. In influenza pneumonia, before the complicating organisms influenced the x-ray findings, the process appeared as a central one working out toward the periphery in both lungs.

The interesting feature of this case is the atypical character of bronchopneumonia and empyema that a streptococcus can cause.

The second case was that of a man, 69 years of age, who had been complaining of epigastric discomfort and slight pain for a period of 3½ months. This discomfort did not seem to be related to food. Within the past 3 weeks definite jaundice had developed and had steadily increased. The stools at times were clay-colored and at other times brownish. There had been a distinct loss of weight. The only point of interest on physical examination was the presence of a mass in the right upper quadrant. The clinical pathology showed bile in the urine, and the stool passed in the hospital was brownish in color. An x-ray after the ingestion of dye showed a very large, redundant gall bladder, the shadow of which did not diminish appreciably after a fat meal. It was felt by the roentgenologist that a neoplasm involving the ampulla of Vater was the most likely diagnosis. Because of the intermittent appearance of bile in the stools, the clinicians were inclined to favor the diagnosis of a stone in the common duct, although, according to Courvoisier's law, the enlarged gall bladder would suggest a neoplasm.

At operation, a neoplasm involving the pancreas was found, and the gall bladder was anastomosed to the stomach. Bleeding into the gastrointestinal tract developed, and the patient died.

At autopsy, the diagnosis of a neoplasm involving the head of the pancreas was confirmed, and the hemorrhage was found to have come from an ulceration of the tumor into the duodenum. The histologic study of the tail of the pancreas was of interest because it showed marked degeneration of the glandular tissue, but the islands of Langerhans were not in the least involved.

The most interesting features of the case were that the shadow of a gall bladder was obtained in a case of jaundice, and that the failure of this shadow to be influenced by a fat meal permitted the roentgenologist to make the correct diagnosis. This case again emphasizes the point that the Graham test is of value only when actual positive evidence is obtained.

Dr. Kenneth J. Tillotson then gave an exceedingly interesting discussion of the problem of chronic alcoholism and how to handle it. He called attention to the fact that there was a complete bibliography of this problem up to the year 1903, which was compiled by Abderhalden. Dr. Tillotson, in conjunction with Dr. Fleming, has been working on a compilation of the articles written on this subject since 1903, and they have practically brought the bibliography up-to-date.

He considers that chronic alcoholism is a psychiatric problem and that the treatment varies with the causative factors in the individual cases. He presented charts of 50 cases that he had studied from the viewpoint of personality and sociologic data, but in his discussion he included 50 other cases that have been fairly thoroughly worked up but were not included in his charts. He emphasized the fact that certain emotional and personality trends make drinking more dangerous for the individual

that possesses them, and he also emphasized the fact that the personality problems which, in many instances, have been thought to be the result of chronic alcoholism were probably the factors that caused it. In general, the chronic alcoholic, despite the attitude that he presents, is really somewhat of a coward who cannot face life. The figures show that there are approximately as many women as men subject to alcoholism. The alcoholic in many cases may be a hard-working individual. In Doctor Tillotson's figures, there are fewer cases of chronic alcoholism among college graduates than among those that have not been to college. The Jewish race presents the fewest cases in this group, and the Irish the most. Seventy-four per cent of the alcoholic patients showed constitutional psychopathic inferiority. Psychopathic inferiority or epilepsy occurred in the immediate forbears of 44 per cent of the cases, and alcoholism in 42 per cent.

In regard to treatment, he feels that such patients should be committed to an institution so that they can be properly controlled. He emphasized the fact that in his group the average period in the hospital was only 3 or 4 months, which is about half the time spent by psychiatric patients who were successfully treated, and he thinks that a longer stay in the hospital for the alcoholic patient will be essential in order to obtain satisfactory results. He feels that such patients probably should spend about a year under close observation. Alcohol can be immediately taken away from these patients without danger, and the treatment then consists of filling their lives in the institution with other interests to replace the need of alcohol until they have built up a resistance to it. Toward the end of the treatment, the patient is returned from time to time to his normal environment instead of being plunged back into it immediately.

To one not an expert in these subjects, the question arises of just what relation the factors brought out in these histories bear to the disease of chronic alcoholism. There is no doubt that an appreciable amount of data is accumulated from each case, but, whether the group of cases is sufficient without careful histories from a large number of controls who have no symptoms, seems to the writer to be a question.

NOTICES

REMOVAL

DAVID B. STEARNS, M.D., announces the removal of his office to 416 Marlborough Street, Boston. Kenmore 3848.

MASSACHUSETTS PSYCHIATRIC SOCIETY

The next meeting of the Massachusetts Psychiatric Society will be held at the Worcester State Hospital on Friday, April 23.

PROGRAM

3:00 p. m. Demonstration of Hypoglycemia in Schizophrenia. D. Ewen Cameron, M.D.
Demonstration of Berger Rhythm. Hudson Hoagland, Ph.D.
6:30 p. m. Dinner.
7:30 p. m. Scientific Meeting.
The Five Functions of a Mental Hospital. William A. Bryan, M.D.
Insulin Therapy in Schizophrenia. D. Ewen Cameron, M.D.

W. FRANKLIN WOOD, M.D., *Secretary.*

BOSTON SOCIETY FOR THE ADVANCEMENT OF GASTROENTEROLOGY

The next meeting of the Boston Society for the Advancement of Gastroenterology will be held at 8:15 p. m., Friday, May 7, at the Evans Memorial, East Concord Street, Boston.

PROGRAM

1. Clinicopathological Conference. Dr. Norman H. Boyer and Dr. C. F. Branch with the assistance of the audience.
2. Experience with the Double Oral Method of Cholecystography. Dr. George Levene.
3. Certain Aspects of Gallstone Formation. Dr. L. R. Whitaker.
4. Remarks Concerning the Possible Menace of Patent Medicines to the Patient with Gastrointestinal Disease. Dr. Ben Vidgoff.
5. Concerning the Treatment of Patients with Gastrointestinal Hemorrhage. Dr. Harry Parks.

Physicians and medical students are cordially invited to attend.

L. R. WHITAKER, M.D., *Secretary.*

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 p. m. on Thursday, April 22, in the amphitheater of the Peter Bent Brigham Hospital, Dr. Channing Frothingham, physician-in-chief, Faulkner Hospital, will give a medical clinic. Practitioners and medical students are cordially invited to attend.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital amphitheater (Shattuck Street entrance), Tuesday evening, April 27, at 8:15 p. m.

PROGRAM

Presentation of Cases.
The Calcium Salts of Bone. Dr. Milan A. Logan.
Salt and Water Exchange between Tissues and Body Fluids. Dr. A. Baird Hastings, Department of Biological Chemistry, Harvard Medical School.

Medical students and physicians are cordially invited to attend.

MARSHALL N. FULTON, M.D., *Secretary.*

MASSACHUSETTS ITALIAN MEDICAL SOCIETY

The next meeting of the Massachusetts Italian Medical Society will be held in the Peter Bent

Brigham Hospital amphitheater (Shattuck Street entrance), Friday evening, April 16, at 8:30 p. m.

PROGRAM

1. Cardiac Infarction, with Case Reports, Pathologic Specimens, Lantern Slides. Dr. Andrew W. Contratto.

2. Ununited Fracture of the Scaphoid, with Bone Graft and Demonstration of End Results. Dr. William M. Santoro.

Medical students and physicians are cordially invited to attend.

CARL F. MARALDI, M.D., *Secretary.*

AMERICAN ASSOCIATION ON MENTAL DEFICIENCY

The sixty-first annual convention of the American Association on Mental Deficiency will be held at Hotel Haddon Hall, Atlantic City, May 5, 6, 7 and 8.

The extensive program should be of interest to a large number of people as the cause, the care and the prevention of mental deficiency are, as a group, one of the outstanding economic, social and scientific problems of the day. A registration fee of fifty cents, entitling one to an admission card good for all sessions, is required of nonmembers.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, APRIL 19

Tuesday, April 20—

*9 a. m. - 10 a. m. Boston Dispensary, 25 Bennet Street, Boston. Diabetic clinic. Dr. Jacob J. Schloss.

9:30 a. m. Massachusetts General Hospital. Neuropsychiatric staff conference.

12 m. South End Medical Club. Headquarters of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston.

Wednesday, April 21—

8 a. m. Massachusetts General Hospital. Grand rounds, orthopedic department.

*9 a. m. - 10 a. m. Boston Dispensary, 25 Bennet Street, Boston. Hospital case presentation. Dr. S. J. Thannhauser.

†12 m. Clinicopathological conference. Children's Hospital Amphitheater.

4 p. m. - 5 p. m. Surgical pathological conference. Dr. Cutler and Dr. Wolbach, Peter Bent Brigham Hospital.

Thursday, April 22—

8 a. m. Massachusetts General Hospital. Circulatory clinic rounds.

*8:30 a. m. - 9:30 a. m. Exchange visit, surgical and orthopedic staffs of the Peter Bent Brigham and the Children's hospitals, held this week at the Peter Bent Brigham Hospital.

*9 a. m. - 10 a. m. Boston Dispensary, 25 Bennet Street, Boston. Thoracic clinic. Dr. Heinz Magendantz.

11 a. m. Massachusetts General Hospital. Medical grand rounds. Ether Dome.

12 m. Massachusetts General Hospital. Clinicopathological conference.

*3:30 p. m. Medical clinic at the Peter Bent Brigham Hospital. Dr. Channing Frothingham.

Friday, April 23—

*9 a. m. - 10 a. m. Boston Dispensary, 25 Bennet Street, Boston. Diagnostic procedures in allergic cases. Dr. E. A. Brown.

10 a. m. Massachusetts General Hospital. Fracture rounds.

Saturday, April 24—

*9 a. m. - 10 a. m. Boston Dispensary, 25 Bennet Street, Boston. Hospital case presentation. Dr. S. J. Thannhauser.

*10 a. m. - 12 m. Staff rounds at the Peter Bent Brigham Hospital. Conducted by Dr. Henry A. Christian.

*Open to the medical profession.
†Open to Fellows of the Massachusetts Medical Society.

April 16—Massachusetts Italian Medical Society. See page 678.

April 16 and 23—Thomas William Salmon Memorial Lectures. See page 535, issue of March 25.

April 16—William Harvey Society will meet at 8 p. m. in the auditorium of the Beth Israel Hospital, Boston.

April 20—Lawrence Cancer Clinic. See page 633, issue of April 8.

April 20—South End Medical Club will meet at 12 m. at the Headquarters of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston.

April 21-24—American Society for Experimental Pathology. See page 1075, issue of May 21.

April 22—Medical Clinic at the Peter Bent Brigham Hospital. See page 678.

April 23—Massachusetts Psychiatric Society. See page 678.

April 27—Harvard Medical Society. See page 678.

April 28—New England Obstetrical and Gynecological Society. See page 633, issue of April 8.

May 5—George Washington Gay Lecture. See page 633, issue of April 8.

May 5, 6, 7 and 8—American Association on Mental Deficiency. See notice elsewhere on this page.

May 7—Boston Society for the Advancement of Gastroenterology. See page 678.

June 7—American Medical Golfers Play in Atlantic City. See page 582, issue of April 1.

June 8—The American Neisserian Medical Society. See page 489, issue of March 18.

June 8 and 9—American Board of Obstetrics and Gynecology. See page 78, issue of January 14.

June 11-18—Catholic Hospital Association. See page 488, issue of March 18.

July 6-11—Fifth International Congress of Hospitals. See page 37, issue of January 7.

October 5-8—American Public Health Association Meeting. New York City.

October 25-29—American College of Surgeons. Chicago, Illinois.

DISTRICT MEDICAL SOCIETIES

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

May 12—Annual meeting. Salem Country Club. Speaker: Dr. P. P. Johnson of Beverly. Subject: A Trip to the Bahamas and Guatemala. (Illustrated.)

R. E. STONE, M.D., Secretary.
74 Lothrop Street, Beverly.

FRANKLIN DISTRICT MEDICAL SOCIETY

Will meet at the Weldon in Greenfield at 11 a. m. the second Tuesday of May.

CHARLES MOLINE, M.D., Secretary.
Sunderland.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

May 11—Bear Hill Golf Club, Stoneham.

KENNETH L. MACLACHLAN, M.D., Secretary.
1 Bellevue Avenue, Melrose.

NORFOLK DISTRICT MEDICAL SOCIETY

May—Annual meeting. Details to be announced.

Note: The Censors will meet for the examination of candidates on the first Thursday of May. Fee of $10.00 is payable at the time of examination. Application blanks may be obtained by writing the Secretary, furnishing name, address and name of school of graduation in medicine. Application must be made at least three weeks prior to date of examination. Candidates whose applications are on file will receive proper notices.

FRANK S. CRUICKSHANK, M.D., Secretary.
1247 Beacon Street, Brookline.

PLYMOUTH DISTRICT MEDICAL SOCIETY

May 20—11 a. m. Lakeville State Sanatorium.

FRED F. WEINER, M.D., Secretary.
231 Main Street, Brockton.

SUFFOLK DISTRICT MEDICAL SOCIETY

April 28—Annual meeting. Boston Medical Library. 8:15 p. m. "Problems in Surgical Diagnosis." Dr. Howard M. Clute.

CONRAD WESSELHOEFT, M.D., President,
CHARLES C. LUND, M.D., Secretary.

WORCESTER DISTRICT MEDICAL SOCIETY

May 6—At 4:30 in the rooms of the Worcester Medical Library, Inc., at 34 Elm Street, Worcester, will be held the spring meeting of the Board of Censors.

Wednesday Afternoon and Evening, May 12—Annual meeting.

ERWIN C. MILLER, M.D., Secretary.
27 Elm Street, Worcester.

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

April 28—Meeting will be held at the Burbank Hospital, Fitchburg, at 1 p. m.

BOOK REVIEWS

A Synopsis of Surgical Anatomy. Alexander Lee McGregor. Third Edition. 664 pp. Baltimore: William Wood & Company. $6.00.

Previous American editions of this admirable British textbook have been favorably reviewed in the *Journal*. This third edition has been amplified by a dozen new figures bringing the total of illustrations to 648. There have been added a few new pages of text, chiefly with reference to surgery of the thyroid, of the adrenal, and of diaphragmatic hernia. The description of the ossification of the clavicle has been harmonized to accord with the researches of Fawcett and Mall.

The purpose of the original edition was to present anatomic facts of practical value to the senior student and practitioner. The book is in reality a series of separate essays, each complete in itself, dealing not only with the surgical anatomy of the normal but with that of congenital and developmental anomalies, with the anatomy of nerve injuries, of faulty posture, of the collateral circulations, of the paralytic consequences of poliomyelitis, with the anatomic bases of clinical tests, and with the anatomy of various surgical procedures and approaches.

The work deserves, and fills, a valuable place both for the practicing surgeon and for the teacher of applied anatomy.

In addition to its admirable text and illustrations, it has an excellent foreword by Sir Harold J. Stiles and an introduction by Raymond A. Dart, professor of anatomy and dean of the Faculty of Medicine at Johannesburg. It constitutes a complementary and companion volume to the unsurpassed work of Treves on Applied Anatomy.

Applied Dietetics. The Planning and Teaching of Normal and Therapeutic Diets. Frances Stern. 263 pp. Baltimore: The Williams & Wilkins Company. $3.50.

The author is to be congratulated on this comprehensive scientific and valuable treatise on a subject that is rapidly changing. To the average physician dietetics is still a morass of contradictions and complexities where he gets hopelessly bogged down in combinations of vitamins and salts, fats, proteins and carbohydrates. He is fortunate, indeed, if he can follow his dietitian in the amazing developments of the last ten years in what has been a neglected phase of therapy. Stern has produced in this work not only the conventional manual but she deals with her subject in terms that can be understood by the nurse, the student, the dentist and even the intelligent housewife. She gives clear evidence of the fact that complicated diets beyond the economic possibilities of the patient are useless. Adaptations to help the person that must live within certain narrow boundaries appear in refreshing form. The most interesting chapter deals with education of the patient on a therapeutic diet. Ample tables of the constituents of all foods, suggested specific diet plans, and the results that may be expected are so well presented that all concerned in diet therapy can easily find the information they seek. No diet kitchen should be without Stern's book, and physicians will find it a ready source of help.

Theory and Practice of Psychiatry. William S. Sadler. 1231 pp. St. Louis: The C. V. Mosby Company. $10.00.

This book of more than 1,200 pages is well characterized on its title page as a psychiatric textbook for neuropsychiatric specialists and general practitioners of medicine, and a reference handbook for psychologists, sociologists, pastors and other professional readers. Encyclopedic in scope and content, it is divided into five parts, entitled, Theory of Psychiatry, Personality Problems, The Neuroses, The Psychoses and Psychotherapeutics, all of which are considered in seventy-seven chapters followed by a glossary and index.

There is much to be praised in this book and little to be criticized. The style is good, the arrangement excellent, and the cases cited instructive. One may look far and not find a better textbook for reference, or a less biased compilation of theories and knowledge in the complex field of psychiatry.

International Clinics. Edited by Louis Hamman. Volume IV. Forty-Sixth Series, 1936. 352 pp. Philadelphia, Montreal, London: J. B. Lippincott Company.

The value of Gastroscopy as an addendum to our diagnostic armamentarium is admirably presented by Schloss in the leading article of this volume. This is followed by an excellent group of articles such as the review of Essential Thrombocytopenic Purpura by Giffin, one of the pioneers in the study of this condition. Youmans of late has delved into the field of nutritional diseases with particular reference to vitamin deficiencies and offers an article on Nutritional Edema. Of more practical significance is the contribution on The Bedside Recognition and Treatment of Cardiac Irregularities by Levine. The various case reports and "clinics," all by American contributors, round out an excellent volume of "International Clinics."

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